American Aviation

DECEMBER 11, 1950 35c

THE INDUSTRY'S FIRST NEWS MAGAZINE

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Costly Duplication?

UNIFICATION of military devices has hit a snag in at least one key spot—air transport.

The Navy has been placing orders for long-range aircraft, DC-6's and Constellations, for its Fleet Logistic Air Wings. It is in a fair way to rebuilding what amounts to a new Naval Air Transport Service which it operated successfully during World War II.

by W. W. P.

At the same time the Navy has personnel and equipment assigned to Military Air Transport Service, the single long-range air transport operation that was created to meet the needs of all of the military services.

At a time when all manpower, equipment and productive capacity should be utilized with the utmost efficiency and conservation, the nation is witnessing the development of a new long-range Navy service, or a revival of an old one under a new name. This will not make for efficient utilization of manpower and equipment even though it will give the Navy its own transport system.

Actually there are five military air transport operations at the present time. There is MATS, which is supposed to be the unified command. Then under the Navy there are Fleet Logistic Air Wings, known as FLAW, and Marine air transport wings. Under the Air Force there are two, one the Troop Carrier units, and the other the Strategic Air Command transport service.

But of the five, only MATS has been charged with long-range operations, that is, until FLAW began to grow far out of its original scope of short-haul services.

There are times when several sources of procurement, several types of management and general service rivalry, make for healthy and constructive technical advances. Such a state of affairs would be especially desirable if MATS were inefficient.

But these are not the times to engage in deluxe and costly expansions of equipment and manpower—and a separate transport operation requires an entire new set of maintenance and operating personnel to say nothing of bases and the like.

Nor is the record of MATS such that rivalry is needed. Under the command of Major General Laurence S. Kuter and his deputy, Rear Admiral John P. Whitney, MATS has built up just about the finest all-time record in global transport operations that

(*Turn to Page 6*)

Texaco's Aviation Sales Manager

Aubrey Keif, manager of the aviation sales division for The Texas Company, dates his aviation experience back nearly 35 years to the first World War when he learned his flying with the British Royal Flying Corps and later flew as pursuit pilot in combat. Keif joined The Texas Company's aviation department in 1932, after several years with Curtiss-Wright, and has been manager of aviation sales since 1938.

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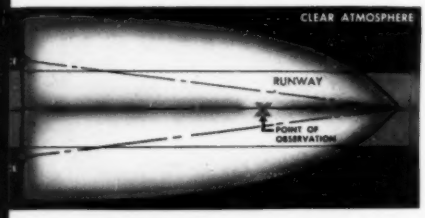
How to Control a Runway Light Beam

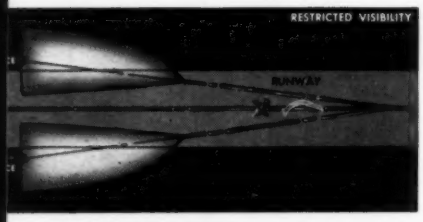
...and why

How to Control a Light Beam—and Why.

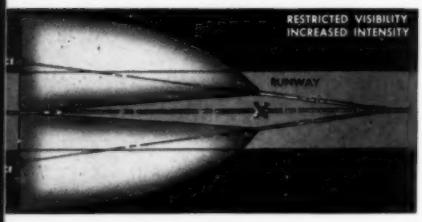
Diagrams show the effective "envelope" of a pair of lights, one on each side of the runway. This will apply to every pair of lights, which comprise the two rows the pilot sees.



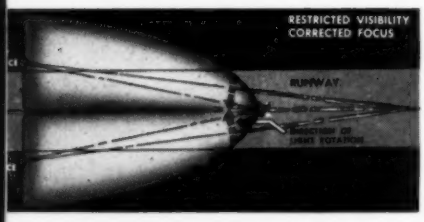
1. Clear weather. Note path of equal brightness along the landing path.



2. Reduced visibility—fog, dust, snow. The pilot can't see the lights—they don't reach him.



3. Increased brightness. But the lights still do not meet because fog, snow, etc., cut the distance light penetrates, not proportionately, but (how's your physics?) according to Allard's Law.



4. So—with L-M Controllable Beam Units—beam direction is corrected. The towerman just sets a pointer to the day or night "visibility" the weatherman gives him. The simple synchronous motors—the one moving part in the units—automatically "cone in" the beams to the correct angle. (No. 2, right.)

L-M GIVES YOU ALL THREE TYPES OF BEAM CONTROL

● For efficient operation, runway lighting systems require more than a mere on-and-off switch. But it's the way in which runway lighting units are controlled that determines their efficiency, in providing the maximum of guidance to the pilot under minimum conditions and in economical operation. L-M's Fully Controllable High Intensity Runway Lighting provides the complete control necessary to assure the highest efficiency, without glare, and the fullest economy of operation. Here are the three ways in which L-M provides a *fully controllable* beam.

1 Control of BEAM INTENSITY

Obviously the most efficient system must be "overbuilt"—to give maximum penetration under the worst atmospheric conditions. Every manufacturer—or at least every installation—includes a brightness control, so that the light intensity may be reduced in clear weather or stepped up to the maximum if required. But L-M provides the very high intensity of 180,000 beam candlepower—and can use this very high intensity because of control of both beam direction and beam shape—which eliminates glare.

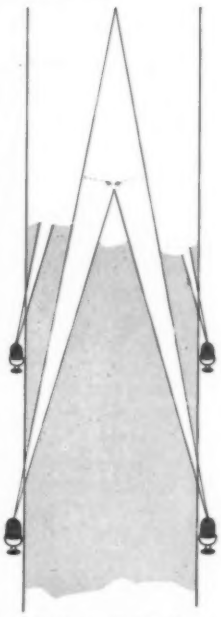
Brightness control provides five steps of light intensity—1%, 3%, 10%, 30%, and 100%—which is 180,000 cp.

2 Control of BEAM DIRECTION

This is the control that made L-M Lights famous! The beam is coned in and out, so that beams always meet at the greatest possible distance of penetration, and the pilot gets the full perspective he requires by seeing both rows of runway lights. A simple toggle switch on a day and night scale, calibrated in "visibility" figures, permits instant, exact control.

3 Control of BEAM SHAPE

L-M High Intensity Units do not provide a garden-variety floodlight-type of beam, but a precisely controlled beam shape designed specifically for runway lighting. This is accomplished by the scientifically designed optical system of the unit, consisting of reflector and double lenses. This system provides 360 degrees of light so that the runway may be seen from any direction, but concentrates the light in a beam directed toward the glide path.



L-M Controllable Beam Lights are "coned" in or out to meet at the greatest possible distance of penetration permitted by atmospheric conditions. (Angles exaggerated in diagram.) The beam pattern gives 360-degree visibility with maximum power toward the glide path.

For complete information on this highly efficient runway lighting system ask the L-M Field Engineer, or write Airport Lighting Division, Line Material Company, East Stroudsburg, Pennsylvania (a McGraw Electric Company Division).

LM

LINE MATERIAL... Airport Lighting

American Aviation

THE AIR INDUSTRY'S FIRST NEWS MAGAZINE

NEWS SECTION

Volume 14 Number 21

December 11, 19

a LOOK at the WEEK

Personal plane makers want Air Coordinating Committee recognition of their importance to defense. CAA has set up machinery for manufacturers to secure directives for materials, but ACC recognition (particularly by Air Force and Navy members) would give more force to requests. Aircraft Industries Association will present case to ACC this week.

•

Airlines and manufacturers have doubts about how system of NPA directives on spare parts for civil use will work. They fear red tape and paperwork will bog down program; also that CAA doesn't have personnel to screen requests.

•

Aircraft and parts manufacturers are having trouble securing materials, even under DO Ratings. Some believe only solution will be Controlled Materials Plan.

•

Munitions Board has been talking to National Production Authority about modifying DO Ratings so manufacturers can extend them to get maintenance, repair and operating supplies. Another troublesome item needing attention is production tool situation.

•

High winds and heavy snows in east pulled airline traffic down considerably in late November but results are expected to be ahead of same 1949 month.

•

Defense Dept. has asked domestic airlines to give discount to servicemen traveling on leave, something that has never been done by the industry. Rails will reinstate coach discount for such travel during Christmas holidays, but there's no indication that any airlines will file a tariff.

•

Important item to remember in connection with NSRB civil aviation mobilization task groups: before the airline groups can move, military and NSRB must decide what pool of transport planes would remain for civil use in event of emergency. Route patterns, priorities, etc., would be tailored to this figure. Decision is expected shortly.

•

Proposed legislation for emergency militarization of CAA is still being studied by Budget Bureau. CAA officials say thinking is that agency would be transferred to Defense Dept. only if U. S. was in immediate danger of attack.

Big Air Force Expansion Probable

The supplemental 1951 defense budget request submitted to Congress last week by President Truman hints at a greatly expanded Air Force appropriation in fiscal 1952 and an aircraft procurement rate far exceeding the present program.

Some observers believe the Administration may even have approved the recommendation of the Joint Chiefs of Staff for a 90-100 group Air Force, considered ambitious a few months ago when it was initially presented.

Key to the speculation is the $2,700,000,000 the President asked for Air Force procurement of aircraft and other items. The main purpose of the supplemental request was to have been to cover the cost of replacing the planes lost in Korea, plus increased costs of aircraft since the expansion programs got under way. Observers noted, however, that the $2.7 billion was several times the amount which might reasonably be expected to cover Korean attrition and price increases. It is believed that the extra money will go toward getting a head start on a greatly expanded procurement program.

84 Groups in 1952

The Budget Bureau also hinted at big things to come in Air Force expansion by stating that the $2.7 billion will enable the AF to build toward 84 groups by July 1, 1952. Mention of the 84-group figure for the first time officially strengthened the speculation that the Administration has approved a program on the scale of the JCS recommendations.

Under the JCS program, the Air Force would reach a strength of between 90 and 100 groups by July 1, 1954, and the Army and Navy would be similarly expanded, the Army to 20 divisions and the Navy to a strength of 12 large and 15 small carriers, compared to its present seven large and eight small carriers. The combined programs, it was originally estimated, would run defense costs to about $40,000,000,000 a year. Price increases and an attrition rate higher than expected in Korea will undoubtedly run the figure much higher.

Airline Planes Recalled to Pacific

Seriousness of the Korean situation has resulted in the recall of airline planes by Military Air Transport Service to bolster the Pacific airlift.

It was announced that 29 more airline planes will go into Pacific service, returning contract participation to the previous peak of 66 scheduled and irregular air carrier aircraft. The number had decreased to 37 in mid-November, when the phase-out was halted. Some of the 29 will join the airlift within the next few days and all should be flying the Pacific within the next three weeks, an Air Force spokesman said.

How far over 66 the total might go will depend on war developments. Rep. Carl Hinshaw (R., Calif.) expressed the opinion in the House on Dec. 6 that "we may have to send our entire four-engine fleet to Korea in the event we have to stage another Dunkirk."

During September, peak month of the airlift, contract carrier aircraft completed almost as many trips from the west coast to Japan as MATS and United Nations (SABENA and Trans-Canada) aircraft combined. In September, 3,305.4 tons were airlifted with contract carriers operating 308 flights and military and UN completing 278 and 42 respectively. Principal items of pri-

ority cargo have been blood plasma, rockets, medical supplies, .30 calibre ammunition, tank parts, aircraft parts, machine gun mounts and radio batteries.

MANUFACTURERS

Kollsman Sold: Kollsman Instrument Division of Square D Co. has been sold for about $5,000,000 to Standard Coil Products Co., which will operate the division on its present basis. **Victor E. Carbonara,** Kollsman's vice president and general manager for more than 10 years, will become president of the division under Standard Coil management.

Liaison Entries Drop: Only four lightplane entries in the liaison plane competition were at Wright-Patterson AFB, Dayton, Ohio, on Dec. 7, three days after the competitive trials were to start. An additional eight entries were expected for a total of 12. A total of 23 companies had earlier indicated intention of entering the competition. The four planes on hand were the Aero Commander, De Havilland Beaver, Ryan Navion, and Cessna 195. Four tests will be used to determine the winner: (1) flight evaluations by four different test pilots, (2) simplicity of maintenance and overhaul, (3) production facilities of bidder, (4) amount of critical materials needed for construction of plane.

Swift, Silvaire Suspended: Production of the Swift and Silvaire personal planes will be suspended by Texas Engineering and Manufacturing Co., and its affiliate, Luscombe Airplane Corp., following completion of units on which work had already started. Move was made necessary by growing material shortages and expanded defense work. TEMCO's backlog has increased from about $2 million in April to $40 million in November, and employment now stands at 4,000.

Jamieson Closes: Pending a company reorganization, Jamieson Aircraft Co., DeLand, Fla., has been closed down and CAA certification tests on the Jamieson Jupiter discontinued. Company flight tests had been run on the plane, but certification tests had not been started. **Ross Holdeman,** former general manager, is no longer with the company.

$9 Million Contract: A $9,000,000 Air Force contract has been received by North American Aviation for miscellaneous assemblies and subassemblies for aircraft.

Another L-19 Order: Another order for more than 100 L-19 liaison planes has been placed by the Army with Cessna Aircraft Co., bringing the company's military backlog for the plane to over 900.

Damage at Piper: Floods and high winds put Piper Aircraft Corp.'s assembly line under eight feet of water and seriously damaged 137 aircraft at Lock Haven, Pa. All but about 50 of the planes will be junked. Damage was estimated at about $160,000, part of which is covered by insurance. Flight demonstrations of Piper 1951 models, scheduled for last week, were canceled and probably will be held in January. Plant is expected to be back to normal production within a few days.

Bendix Buys Plant: Property and facilities of Victor Animatograph Corp., Davenport, Ia., have been purchased by Bendix Aviation Corp., for increased production of aircraft instruments and accessories. Victor Animatograph, a Curtiss-Wright Corp. subsidiary, is a manufacturer of motion picture projectors, which will still be available.

New Sperry Plant: Rights to Lockheed Aircraft Service's maintenance and overhaul facilities at MacArthur Field, Long Island, have been purchased by Sperry Gyroscope Co., which will install a modification center for military aeronautical and ordnance equipment. New facilities will also handle company's expanded flight research and development activities. LAS is moving activities to New York International Airport, where its subsidiary, Lockheed Aircraft Service-International, is already located.

ADMA Elects: **R. W. Richardson,** manager of Goodyear Tire & Rubber Co.'s aviation products division, has been elected president of Aviation Distributors and Manufacturers Association. **George W. Jalonick III,** vice president-sales of Southwest Airmotive Co., was re-elected vice president, and **L. W. Trees,** service manager of Scintilla Magneto Division of Bendix Aviation Corp., was elected vice president.

People: **Ben O. Howard** resigned as Fairchild Aircraft Division's general manager to return to the west coast. He will act as a consultant for Fairchild and will serve in similar capacity with several other aircraft companies. Fairchild has not named his successor . . . **T. F. Riddle,** formerly factory manager for Huey & Philp Co., Dallas, has been named factory manager for Luscombe Airplane Corp. . . . **Ernest Wenigmann,** former works manager of Consolidated Vultee Aircraft Corp.'s Ft. Worth plant, has been elected vice president-manufacturing of Piasecki Helicopter Corp. . . . **August C. Esenwein** has been promoted from assistant division manager to division manager of Consolidated Vultee's Ft. Worth plant. He replaces **Ray O. Ryan,** who has been named vice president-manufacturing for the company.

PLANES & EQUIPMENT

Sapphire in Fighter: The British Sapphire jet engine, to which Wright Aeronautical recently acquired manufacturing rights under license, is slated for installation in an advanced USAF fighter type.

CAA Radar Contract: An additional $404,451 CAA contract for five sets of airport surveillance radar and one set of precision approach radar has been awarded to Bendix Radio Communications Division of Bendix Aviation Corp. New contract brings total number of ASR systems on order with Bendix by CAA to 19 and PAR systems to 15. Original contract had dollar value of $2,479,553.

Canberra Evaluation: The British-built English Electric Canberra, twin-engined jet bomber, will be evaluated by U. S. Air Force along with other aircraft as a troop support plane. There are no immediate plans to buy production models because of the "buy American" policy, AF officials said.

240-A Production: Consolidated Vultee Aircraft Corp. is reported to be planning to start production of 20 240-A's and will be able to make delivery in 18 months unless military conditions interfere. The 240-A will have 43,575 lbs. gross weight against 41,790 for the 240, and will be powered by Pratt & Whitney R-2800-CB16 engines, increasing cruising speed to 290 mph. at 12,000 ft. SABENA Belgian Airlines, Orient Airways, KLM Royal Dutch Airlines and two domestic lines are said to be likely purchasers of the plane.

New Flight Trainers: Navy contracts for two new types of flight trainers, duplicating the Douglas F3D jet fighter and North American SNJ-5 trainer, have been received by Link Aviation Inc.

B-36F Tests: The Convair B-36F, latest model of the 10-engined bomber, has started its flight test program at the company's Ft. Worth plant. Pratt & Whitney R-4360-53 Wasp Major engines have been substituted for earlier models of the same engine, and provide

(*Continued opposite page* 66)

SIKORSKY Helicopter NEWS

SIKORSKY AIRCRAFT
ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION
BRIDGEPORT CONNECTICUT

The dependable performance of Sikorsky helicopters in Korea has earned rotary wing aircraft a permanent, indispensable role in modern military operations.

Here are some of the essential tasks Sikorskys have been performing with distinction, day after day, on missions flown by the Navy, the Marine Corps, and the Air Rescue Service of the Air Force:

Rescuing the wounded and flying them back to rear-line hospitals
Detecting mined waters
Providing quick liaison between ship and shore
Snatching downed pilots from behind enemy lines
Fishing airmen from the sea
Guiding isolated troops to safety
Enabling spotters to trace enemy infiltration movements
Transporting medical personnel and supplies to battle areas
Carrying vital messages to and from mountain outposts
Flying reconnaissance patrols over enemy lines

Many of the tasks assigned to Sikorskys are impossible for any other vehicle - ground or air - to accomplish. Others are jobs that helicopters can complete in a fraction of the time needed by ground transportation. Still others are brand-new military assignments made possible by the helicopter's special capabilities.

In short, the military potential of the helicopter is expanding every day. Sikorskys, the only helicopters to serve in World War II, are again demonstrating their versatility in a war zone where their proved maneuverability, ruggedness and adaptability really pay off.

SIKORSKY AIRCRAFT

Bridgeport, Connecticut

News In Pictures

Stratojet Line—This photo of B-47 Stratojet production at Boeing Airplane Co.'s Wichita plant, the first ever released, is evidence of the great emphasis being placed on B-47 production. Note the four parallel production lines.

Transport Display—More than 150,000 are estimated to have visited Third Annual Air Transportation Day at Los Angeles International Airport where latest in commercial and military airplanes were lined up in a mile-long display. Biggest craft was Douglas C-124 which arrived and unloaded cargo of three fully loaded trucks.

Order Doubled—Military orders for the Cessna L-19 have been doubled, bringing the total number of airplanes on order to 800 and the dollar volume to approximately $10,000,000. For use in reconnaissance and liaison work, the L-19 features a wide tread landing gear, high lift flaps and all metal construction. Powered by a 213 horsepower Continental engine the Cessna plane meets the Army's speed requirements at 29% of rated horsepower.

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½ YARD TO Touchdown!

The first team is coming in . . . via Fairchild Packet . . . and the Airborne Trooper is headed for a touchdown in the drop zone.

He is carrying the ball now in an assault play that is the culmination of the most carefully planned teamwork imaginable.

For behind this hard-driving trooper are thousands of hours of training and practice and co-ordination with countless other well-trained experts: pilots, plane crews, ground technicians and a host of other U. S. Air Force and U. S. Army strategists and tacticians.

Tracing the team members back even further than that, there are the engineers and designers who planned and created Fairchild's C-82 and its larger, more powerful sister ship, the C-119 . . . transports that bring the Trooper to his goal.

Together, they make a winning combination . . . resulting in successful touchdown after touchdown . . . in the Air Age.

ENGINE AND AIRPLANE CORPORATION

FAIRCHILD *Aircraft Division*

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Oak Ridge, Tenn. Farmingdale, New York

can be found in aviation history. A perfect record of 2,100,000,000 passenger miles is sufficient evidence in itself.

Quite naturally the Navy maintains that MATS is unable to supply the transport equipment and service when the Navy needs it, but the solution to this attitude is in the hands of the Joint Chiefs of Staff. There is no reason why sufficient MATS equipment cannot be assigned to the Navy's use, when and as required, and thus retain a major pool of equipment with peak utilization for all military purposes.

The National Defense Act did not settle the basic air transport issue. MATS was created by agreement, not by law. A loophole was left, perhaps quite properly, for the Navy to operate its own fleet air wings. But the intention of the Act and of the agreement was quite clear. There was to be but one long-range air transport operation for all of the services.

The question is simply one of getting the best utilization out of manpower and equipment. The nation cannot afford the luxuries which the various services enjoyed during World War II when there was scarcely any limit on manpower and productive resources. We are not faced with that kind of a war today. No one questions the Navy's ability to operate an efficient service—NATS in World War II was a very excellent show in every respect.

It seems to us that the Navy will be playing fair with the nation and its resources if it will "play ball" by throwing into MATS, for maximum utilization and efficiency, all of its long-range transport plans and operations. If it doesn't, it may well stand accused of breaking the faith that went into unification.

On the Excessive Side

SOME newspapers seem to go out of their way to feature airplane accidents regardless of the type of accident or relative importance. A friend of ours kept a watch on *The Los Angeles Times* some time ago and for 26 or 28 consecutive days—he forgot which number was correct—the *Times* had an airplane accident on its front page, often with photos.

The other day when a TWA plane over-shot an emergency landing at Long Beach, the *Times* ran an 8-column photo. There is no denying that the TWA accident was news. As a local story it was natural that a photograph should appear. But an 8-column shot, plus the 26 or 28-day consecutive front-page accident stories, makes one wonder if something other than news judgment is prompting such an excessive display of interest in plane accidents. Airplane accidents have been, are, and will be news. But they deserve news attention to their relative importance in the day's output of news. *The Los Angeles Times,* to name just one newspaper of many, might well examine its news evaluation.

In a recent issue *Life* magazine didn't do the scheduled air transport industry any good by its excessive treatment of the non-scheduled DC-4 accident in France involving a group of Canadian pilgrims returning home from Rome. There wasn't a single reference to the fact that this accident involved a charter flight operated by a non-scheduled service. *Life* is an extremely powerful and influential magazine. One would have hoped that its editorial staff would be more careful in exercising its responsibilities. The average reader could not help but assume that the accident on Mont Blanc involved an airline regularly flying the route.

Walter Beech

AN ERA has passed with the death of Walter Beech.

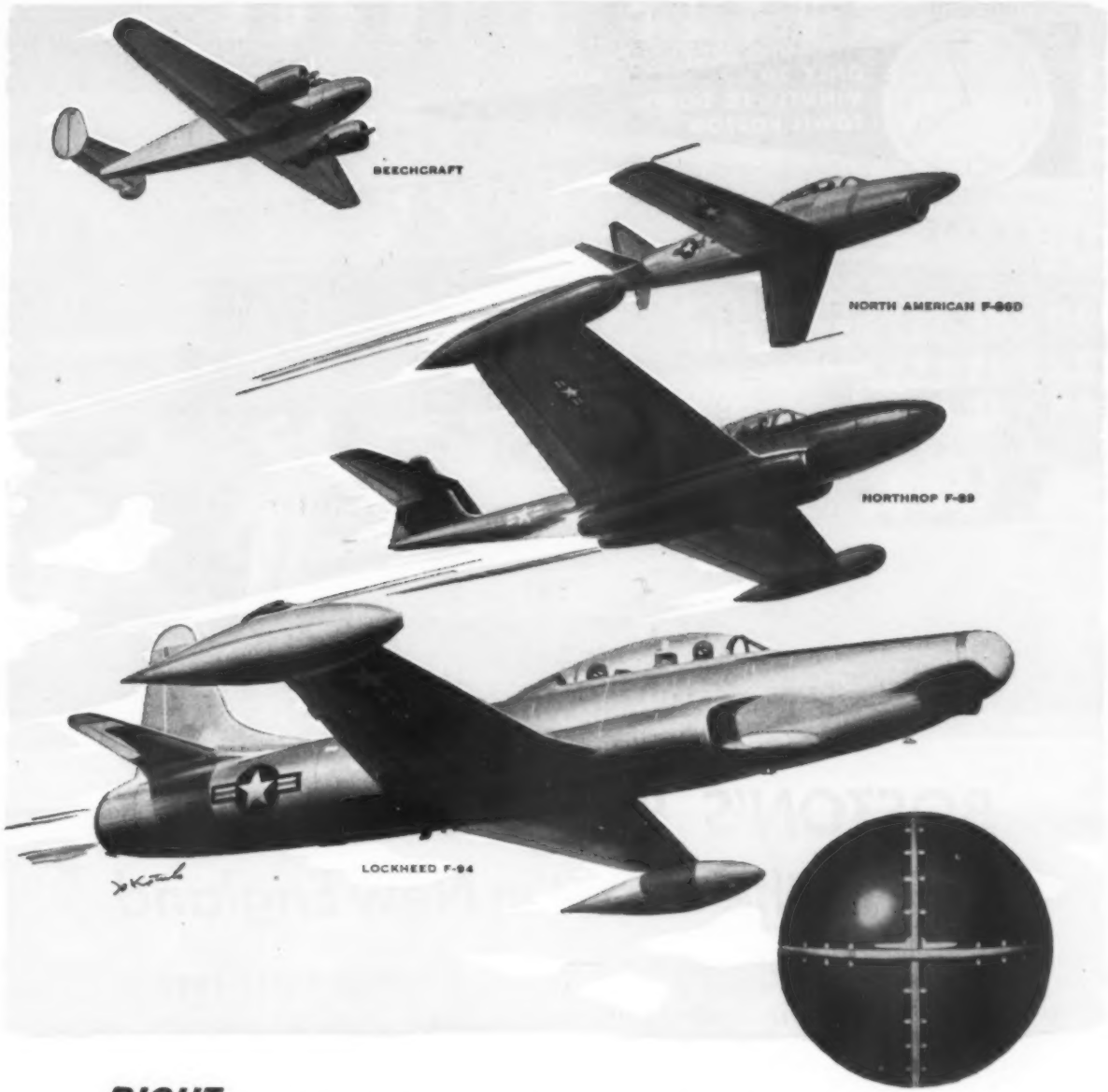
The Tennessee farm boy who had his first solo flight in a primitive Curtiss pusher in 1914, who flew in World War I and who began designing and building airplanes in 1923 with the old Swallow Aircraft Corp., will be missed wherever airplanes are flown.

It would be difficult to assess a proper credit for aviation's growth to this determined man whose passion for airplanes made his name and Wichita synonymous with aviation history. In 1925 he organized the Travel Air Manufacturing Company and built his first advanced airplane in 30 square feet of leased space in a planing mill. In the next four years Travel Air was a name known throughout the world. Travel Air planes won one race and record after another and in 1929 the company was the largest producer of both monoplanes and biplanes in the world, with a peak output of 25 per week and employing a thousand persons.

Then came the stock market crash and the inevitable collapse of commercial aviation. Walter Beech merged his company into Curtiss-Wright Airplane Company and became president. But New York and financial worries were not for Beech. He resigned in 1931 to go back to Wichita.

Around the nucleus of the same able group that made Travel Air pre-eminent in the field, he formed a new company in 1932 at the very depth of the depression. In this group were Olive Ann Mellor, his secretary and later his wife; T. A. Wells, the talented engineer who is still the key designing figure with Beech Aircraft, and R. K. Beech, his brother. Since 1932 Beech Aircraft Corp. has been a solid success. Both its products and its engineering contributions are known on all of the continents. The company stands today as a monument to the undaunted faith and courage, plus a sixth sense of what makes airplanes tick, of an American whose name is as inextricably linked to aviation as are the names of the Wright brothers.

WAYNE W. PARRISH



RIGHT for the Executive Aircraft...
RIGHT for the Jet Fighter...Sperry ZERO *reader*®

The versatility and adaptability of the Sperry Zero Reader* are shown by its use on the supersonic all-weather jets of the U. S. Air Force . . . including the Northrop F-89, North American F-86D and the Lockheed F-94.

The Zero Reader performs for jet fighters the same job it does for commercial and executive aircraft such as the Beechcraft and Douglas DC-3—simplifying flying, navigating and making manual approaches for pilots.

The Zero Reader tells the pilot directly on a simple two-element indicator how to move the controls so as to fly the correct flight path with ease and precision. It combines the type of information usually supplied by the gyro-horizon, directional gyro, magnetic compass, sensitive altimeter and cross pointer meter.

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United States Navy
at Kansas City, Mo.
May 10, 1939

Felix L. Baker
Bureau Aero, USN
at Kansas City, Mo.
May 10, 1939

Ray G. Sparks (QB)
at QB Meeting, K. C.
Continental Hotel
May 10, 1939

W. K. "Kemp" Jacks (QB)
at Continental Hotel
Kansas City, Mo.
May 10, 1939

W. S. "Bill" Green (QB)
Mgr. Fairfax Airport
at QB Meeting, K. C.
May 10, 1939

P. H. "Phil" Bassett
U. S. Naval Reserve
at QB Meeting, K. C.
May 10, 1939

J. E. "Johnny" Herlin (QB)
Trans. & Western Air
Kansas City, Mo.
May 10, 1939

A. D. "Duke" Hillman
at Continental Hotel
QB Meeting, Kansas City
May 10, 1939

Francis Poindexter (QB)
Kansas City Club
Kansas City, Mo.
May 10, 1939

A. J. "Al" Jaster
Mid-Continent Airlines
Kansas City-Tulsa
May 11, 1939

Paul C. Walters
Mid-Continent Airlines
Kansas City-Tulsa
May 11, 1939

Howard N. Gray
Tulsa Municipal Airport
Tulsa, Oklahoma
May 11, 1939

W. E. "Bill" Hottle
Haliburton Oil Wells
at Tulsa, Oklahoma
May 11, 1939

W. T. "Tommie" Neal
Spartan School Aero
Tulsa, Oklahoma
May 11, 1939

Paul Ranskoski
Spartan School
Tulsa, Oklahoma
May 11, 1939

Fred J. Tolley
Spartan Aircraft
Tulsa, Oklahoma
May 11, 1939

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A. F. "Al" Winn
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Spartan Aircraft Corp.
Tulsa, Oklahoma
May 11, 1939

M. W. "Max" Balfour (QB)
Spartan Aircraft Corp.
Tulsa, Oklahoma
May 11, 1939

J. H. "Dude" Walker (QB)
American Airlines, Inc.
Tulsa-Chicago
May 11, 1939

T. W. "Tom" Brooks
American Airlines
Chicago-Detroit
May 11, 1939

J. W. "Joe" Forsythe
N. Y. Police Dept. Aviation
at Stinson Aircraft
Wayne, Mich., May 12, 1939

J. Q. "Jack" Friedman (QB)
N. Y. Police Dept. Aviation
at Stinson Aircraft
Wayne, Mich., May 12, 1939

Gus Crawford
N. Y. Police Dept. Aviation
at Stinson Aircraft
Wayne, Mich., May 12, 1939

J. C. "Jim" Welsch (QB)
Stinson Aircraft
Wayne, Michigan
May 12, 1939

J. K. "Pete" Stepp
Shell Oil Company
at Stinson Aircraft
Wayne, Mich., May 12, 1939

O. G. "Block" Blocker
Stinson Aircraft
Wayne, Michigan
May 12, 1939

Cass Szmagaj
Stinson Aircraft
Wayne, Mich.
May 12, 1939

G. O. "Gary" Adams
Stinson Aircraft
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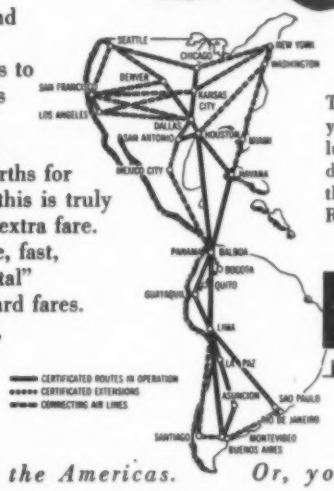

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So BFG engineers sheathed a hydraulic line in electric rubber, put it into service test on a TWA Constellation. After 1297 hours of operation, TWA reported complete success. No thickening of the oil—even at minus 25° Centigrade. No false readings on the instrument. And no signs of deterioration of the heating element. As a result, new TWA Constellations are being delivered with the BFG heated hydraulic line installed, and planes now in service are being converted.

Electric rubber is typical of the many products of B. F. Goodrich research which solve tough problems in aviation. For help with your problem, write *The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.*

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FIRST IN RUBBER

American Aviation ESTABLISHED JUNE 1, 1937 VOLUME 14 NUMBER 21

Growing material and parts delivery lag . . .

By WILLIAM D. PERREAULT

CAA and CAB have been designated by the National Production Authority to screen all civil requests for aircraft, materials and parts in short supply, in an effort (1) to keep airlines and other civil planes flying, and (2) to maintain commercial production along with the greatly accelerated military program.

The joint military-civil agreement provides that:

- **CAA** will screen all requests for critical spare parts and maintenance supplies for fixed base operators, executive aircraft owners, scheduled and non-scheduled air carriers. It will also handle the "whole" plane requirements of all but the air carrier group.
- **CAB** will serve as claimant agency for "whole" transport aircraft for both scheduled and non-scheduled air carriers.

Even as the procedures were being worked out the manufacturers and airlines were feeling the first effects of accelerated production schedules and initial operation of the NPA system of defense order priorities.

Reserves Dwindling

Reserve supplies were dwindling so rapidly that the Aircraft Industries Association warned that there would be production-line stoppages within 30 days unless effective measures were put into effect immediately.

General Electric Co. and Raytheon Mfg. Co., the two sources of ruggedized vacuum tubes, so vital to airborne communications equipment, notified commercial operators that the existing supplies of tubes would have to be turned over to the military services unless specific priorities for airline use were established by the end of October.

(First directive issued under the NPA procedures relating to priorities for civil transport equipment related to this item. The two companies were ordered to deliver some 12,000 electronic tubes to Aeronautical Radio, Inc., not later than Jan. 31, 1951 "to avoid the grounding of planes required in the defense effort.)

Several prominent electronics manufacturers informed the airlines that they could no longer accept orders for new equipment unless accompanied by defense orders (DO's) not available to any civil user.

Columbium (an alloy steel), cobalt, beryllium, stainless steel sheet stock and other items of supply had virtually disappeared from the civil market.

Difficulties Remain

This was the picture as the Air Coordinating Committee made its announcement that an interim agreement had been reached to provide "critical emergency" items to the commercial airlines, their suppliers and similar groups. While the agreement represents progress, without which commercial aviation would have suffered almost immediate setbacks, there remained some difficult problems.

Probably the weakest link in the chain of production of both new airplanes and spare parts is the question of "lead time" on aircraft components (see chart, next page). The aircraft industry, as pointed out by AIA's president DeWitt C. Ramsey, is primarily a contracting industry. It manufactures primarily on order and then only to meet specific customer requirements.

On the basis of known requirements the aircraft manufacturer orders component parts from thousands of suppliers across the country. As shown in the chart, even in normal times some components, such as engines, require as much as a full year lead time. Landing gear struts take 38½ weeks, superchargers 30 weeks, magnesium sheet 34 weeks, dynamotors 30 weeks, etc.

Lead Times Jump

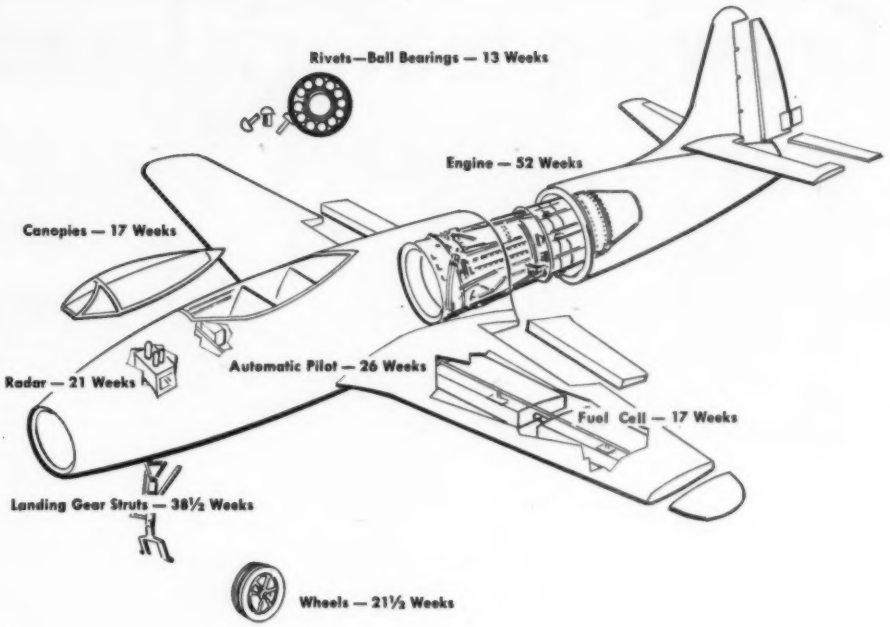
The sudden production acceleration exaggerated this condition even more. Ramsey told ACC that one manufacturer who normally figured an average lead time of 100 days for normal supplies now found this figure at 350 days. In another case a 60-day average lead time had been upped to 150 days.

Since the start of the Korean war, manufacturers have dipped into the supplies initially ordered to meet long-standing commercial orders. Without some system of priority for civil aviation needs it would have been impossible to replace many of these items. Each supplier, all the way back to the unprocessed material source, would have required a DO before releasing material or production.

Now the NPA directives, which in effect will have priority over DO's, will correct this basic shortcoming. Suppliers will be authorized to divert materials and production to worthy civil aviation needs. This does not

IT TAKES TIME TO BUILD A MODERN AIRPLANE

Superchargers — 30 Weeks
De-Icing Boots — 13 Weeks
Batteries — 17 Weeks
Dynamotors — 30 Weeks
Generators — 21½ Weeks
Gun Mounts — 17 Weeks
Oil Filters — 17 Weeks
Thermostats — 21½ Weeks
Altimeters — 17 Weeks
Compasses — 21½ Weeks
Gyro Controls — 25¾ Weeks
Tachometer — 25¾ Weeks
Pitot Tubes — 21½ Weeks
Brakes — 21½ Weeks
Oxygen Gages — 17 Weeks
Radio Amplifiers — 21½ Weeks
Needle Bearings — 21½ Weeks
Bolts, Standard — 17 Weeks
Landing Lights — 14 Weeks
Microswitches — 8½ Weeks
Gaskets — 13 Weeks
Special Pulleys — 17 Weeks
Air Ducting — 8½ Weeks
Spark Plugs — 4¼ Weeks
Rubber Hose — 8½ Weeks


Rivets—Ball Bearings — 13 Weeks
Engine — 52 Weeks
Canopies — 17 Weeks
Automatic Pilot — 26 Weeks
Radar — 21 Weeks
Fuel Cell — 17 Weeks
Landing Gear Struts — 38½ Weeks
Wheels — 21½ Weeks

Inconel Sheet — 13 Weeks
Magnesium Sheet — 34 Weeks
Crew Seats — 17 Weeks
Galvanized Steel — 17 Weeks
Vibration Mounts — 17 Weeks
Special Washers — 13 Weeks
Aluminum Cable — 17 Weeks
Copper Cable — 13 Weeks
Brass Wire — 13 Weeks
Aluminum Sheet — 17 Weeks

Throttle Assemblies — 17 Weeks
Cable Assemblies — 15 Weeks
Nylon Tank Spacers — 17 Weeks
Zippers (Pressurized) — 13 Weeks
Aluminum Castings — 8½ Weeks
Cements and Glues — 4 to 6 Weeks
Magnesium Extrusion — 13 Weeks
Honeycomb Flooring — 13¾ Weeks
Aluminum Forgings — 17 Weeks
Radio Coaxial Cable — 19 Weeks

Bronze Antenna Cable — 10¾ Weeks
Close Tolerance Screws — 21½ Weeks
Stainless Steel Forgings — 17 Weeks
Plexiglas Windows — 13 Weeks
Curved Windshield — 17 Weeks
Magnesium Forgings — 13 Weeks
Chrome Moly Steel — 13 Weeks
Aluminum Bar and Rod — 13 Weeks
Magnesium Bar and Rod — 13 Weeks
Metallic Hose Assemblies — 17 Weeks

Welding Rod and Solder — 6 Weeks
Power Transmission Assemblies — 21½ Weeks
Fire Extinguisher Equipment — 17 Weeks
Rolled Aluminum Section — 21½ Weeks
Turn and Bank Indicator — 21½ Weeks
Aluminum Alloy Extrusion — 17 Weeks
Special Self-Locking Nuts — 21½ Weeks
Textiles and Fabrics — 13 Weeks
Aluminum Tubing — 17 Weeks
Electrical Condensers-Capacitors — 17 Weeks

SOURCE: Analysis of Material Procurement Time, Typical Aircraft Company (Revised Aug. 10, 1950) "PLANES"

LEAD TIMES shown in this chart may be considered normal. Since the recent acceleration in production schedules and related shortages some of these have actually doubled, according to AIA.

solve the problem of actually replacing items with lead times of many months that have already been diverted.

In theory civil needs are very small, less than 5% of the combined military-civil dollar volume. Not including customer-furnished equipment, (such as crew and passenger seats, galleys, communications equipment, etc.) AIA estimates that 196 of the transports now on order by the airlines will total $152 million. An added $41,000,000 in anticipated spare parts requirements, in addition to $9,000,000 already firmed up, brings the total to $203 million.

Common suppliers provide the key materials and products for both civil and military needs. While military transport orders to date have been rather limited—about 50 airplanes—many of the supplies are common to every type aircraft under construction for the services. In a few instances, such as the Lockheed Constellations and Douglas DC-6's, military and civil production are on common production lines.

Efficient operation and full utilization of the facilities and personnel will require that both groups move along at comparable rates. It is apparent that shortages affecting either group of planes will affect both groups. With production requirements snowballing in excess of the immediately available capacity, it appears that the projected delivery schedules (opposite) of commercial transports may have to be altered.

To prevent this delay CAB will act as claimant agency and through the NPA seek to insure the schedules now established. Within the industry's capacity, cooperation can be expected. On October 24 the Air Coordinating Committee, representing collective thinking of the military services, agreed that commercial transports and related parts should be accorded priorities equal to the military.

Indications are that CAB will seek and get a broad NPA directive which will direct the manufacturers and suppliers to give prime attention to commercial transport production re-

quirements. This is not likely to require a case-by-case review.

Spare Parts Problem

The airlines and private operators appear to be in a less enviable position as regards spare parts. CAA has been assigned the job of screening all requirements not assigned to CAB, that is, all spare parts and materials.

Bottleneck in the operation will be the rigid status of NPA directives through which the airlines and private operators are expected to get relief from shortages. These will be issued only for specific emergency conditions. The exact supplies required, the vendor and the purpose will be specified. The force and effect of directives will not be transferable nor can they be extended.

This is an interim program. As such it will probably relieve the immediate critical situation. Since it is a system designed to meet specific emergencies it is a cumbersome procedure at best. Much will depend on the manner in which it is administered.

How It Will Work

This is how it will be administered: An operator who finds himself in "critical emergency" need of parts will apply to CAA's regional office. There CAA agents will first determine that the matter is an emergency. The applicant must show that he had exhausted the normal channels of procurement without avail.

This being true the agent reviews the completeness of information submitted. With regional approval the request is forwarded to Washington. There another CAA group screens the request to determine that it fits the pattern of the priorities policy. If so the request in forwarded to the National Production Authority.

In the case of scheduled airlines the Air Transport Association will act in the same role as the CAA regional office. Airlines will forward their requests to ATA which will screen them and forward them to CAA's Washington office for further action. Electronic requirements of these airlines will be handled in a similar manner by Aeronautical Radio, Inc.

In most cases NPA is expected to approve the CAA-screened recommendations and issue a suitable directive. This directive will direct a given manufacturer or supplier to fill the applicant's need. Even though DO-rated production may be on the line the manufacturer will be expected to accommodate this civil requirement.

Critical Items Only

This emphasizes that only proved critical items will ever result in directives. This is not a matter of providing a convenient route around the realities of military production priorities. It is a small path through which legitimate emergencies can be brought to the attention of production authorities and acted on.

This procedure may well serve the needs of general private and executive flying. It will probably have to be refined and broadened to meet the needs of airline operation. The erratic parts requirements of the transport operators combined with long lead times on many items will, industry groups claim, result in confusion and ultimate interruption of services.

U. S. Transport Delivery Timetable

Customer	Undelivered Quantity on Order	1950 Dec	1951 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1952 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1953 Jan	Feb
Douglas Aircraft Co.																												
Arabian Oil Company	2																1				1							
American Airlines	11			1	2	2	2	3	1																			3*
Braniff Airways	3									1	1	1																
Confidential	1									1																		
Compania Mexicana de Aviacion	1	1																										
Delta Air Lines	1		1																									
KLM	7														1	2	1	2	1									
National Airlines	2	1	1																									
Philippine Air Lines	2																1	1										
Pan American World Airways	18											1	2	1	1	2	2	2	2	2	2	1						
Pan American Grace Airways	2													1	1													
Scandinavian Airlines System	2														1	1												
Swiss Air	2							1	1																			
Slick Airways	3			1							1			1														
United Air Lines	20		1	1	1	2	1		1	1									2	4	1	5						
Unassigned	6																					6						
Air Force	18														2	2	2	2	2	2	2	2						
Navy	11								1	1	2	2	3	2														
Total	115	2	3	3	3	4	3	4	4	4	4	4	5	5	6	7	7	7	7	8	6	8	8					
Lockheed Aircraft Corp.																												
Air France	4								1	2	1																	
Air India	2					1	1																					
Avianca	2					1	1																					
Chicago & Southern	3				1	1		1																				
Eastern Air Lines	14											1	2	3	4	3	1											
KLM	10			1																			2	2	2	2	1	
Trans World Airlines	11	3	2			1	2	2		1																		
Air Force	10																				3	1	2	3	1			
Navy	11																1	3	3	3				1				
Total	67	3	2	1	1	4	4	3	1	3	1	1	2	3	4	3	2	3	3	3	3	1	2	5	4	2	2	1
The Glenn L. Martin Co.																												
Eastern Airlines	35							1	1	2	2		8	8	8	5												
Trans World Airlines	41					2	3	4	5	2	6	8				3	8											
Total	76					2	3	5	6	4	8	8	8	8	8	8	8											

* Delivery dates not available.

BOEING ★ CHASE ★ CONSOLIDATED-VULTEE
DOUGLAS ★ FAIRCHILD ★ GRUMMAN ★ MARTIN
LOCKHEED ★ McDONNELL ★ NORTHRUP ★ CHASE
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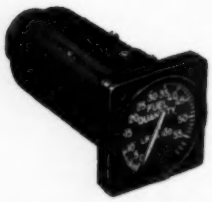

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'Realism in Air Freight'

. . . . . Earl Slick Gives All-Cargo View

By EARL F. SLICK
Chairman of the Board
Slick Airways, Inc.

(Editor's Note: The following article was received as a letter from Earl Slick in response to the editorial appearing in AMERICAN AVIATION *on October 16, titled "Realism in Air Freight." That editorial was a reprint of a speech given by Wayne W. Parrish before the recent California Air Freight Clinic. While most of the comments received have been in accord with Parrish's views, Slick takes detailed exception to the editorial. His dissenting viewpoint is well worth reading.)*

EVER since I read the reprint of your speech at San Francisco, "Realism in Air Freight," I have intended writing you as I felt you had either been misinformed or that we had failed to keep you informed.

Of course, I realize that the remarks were directed at the industry as a whole, and I agree in many respects insofar as they relate to the passenger airlines. I don't think they have ever been too interested in developing this phase of their business but have merely attempted to keep pace with us so they wouldn't lose their rights. However, I firmly believe that most of your statements are incorrect as applied to Slick Airways.

Knowing that you share my conviction that this nation's security demands a strong commercial aviation industry, I cannot refrain from pointing out to you where and why I think that air freight will make an important contribution to the national defense as well as to the country's economy. In addition, I cannot believe that some of your remarks were intended as they sounded. For example, you inferred that the transportation of air freight was not dependable transportation because of crowded traffic and adverse weather conditions.

Meet Same Conditions

I admit these items are problems, and I will discuss their solution a little later, but if air freight transportation is not dependable because of these reasons, then neither is air travel dependable, because passenger planes receive no priority over freight planes insofar as traffic control is concerned and all flights are confronted with the same weather conditions.

I agree that a shipper demands dependability, but no more so than a passenger, whether flying to an important business conference or on a pleasure trip. The tremendous increase in air travel indicates that the public is beginning to accept this means of transportation as dependable, and I believe that Slick Airways' growth and long list of satisfied customers indicate that shippers are receiving dependable service. This is further borne out by our record of over 95% of schedule completions.

Earl F. Slick

Since Slick Airways is carrying more air freight than any other carrier, I feel we are well qualified to speak on this subject. Therefore, if you will bear with me, I would like to discuss your article in chronological sequence beginning with your introductory remarks. Please remember that it is not my intention to disprove your statements or to provoke an argument, but merely to explain my thinking in the hope that you may begin to believe there is a future in air freight.

Slower Development

In your introductory remarks you emphasized the big margin of error in projecting air freight volume. There were many forecasts, and, of course, some of them were completely out of line. However, those who were overly optimistic made their biggest error in predicting a more rapid development than has been experienced, earlier use of more economic aircraft, and the resultant reduction in rates which would increase the volume. I don't believe they missed on the potential and feel that their projections will be eventually realized.

Our original forecast, made in the latter part of 1946 in connection with a proposed public financing, was that by 1948 we would transport 4,900,000 ton miles with 20 aircraft. We didn't obtain a fleet of that size nor did we achieve that volume. However, with 22 aircraft we have exceeded 4,000,000 ton miles every month since June of 1950. We never expected to become, over-night, a big factor in the freight market, but we have always felt that air freight was going to be a big factor in the air transportation industry.

I feel that we had a good chance of making our forecast come true in 1948, had it not been for a few unanticipated stumbling blocks that were placed in our path. We expected certification to be accomplished within a year. Instead, we were subjected to a long and costly battle requiring almost three years. It took another long battle to obtain directional rates to help in solving the backhaul problem. Rate wars and unfair competition further slowed down our development.

In reality, our concentrated efforts didn't begin until our certification two years ago, and it has been a slow uphill fight to get back on our feet.

No Federal Leadership

We could have certainly used a few more optimists, particularly in governmental circles. Despite the demonstrated value of air freight in the last war, as well as in the Berlin and Korean crises, there has been no leadership in government for the development of commercial air freight and very little recognition.

The Civil Aeronautics Act was enacted to encourage the development of an air transportation system adapted to the needs of commerce, the postal service, and the national defense. Perhaps we were naive, but, realizing that the government had spent millions in subsidy to carry out this declaration of policy, we never dreamed that a carrier willing to assist in meeting the objectives of the Act on two counts, commerce and national defense, without subsidy, would fail to receive hardly any assistance or recognition but would actually be hampered by this same government.

Our biggest obstacle in raising capital has been the investors' fear of the unpredictable governmental policy and politics.

I have never doubted that some day air freight is going to exceed the passenger business and, to my knowledge, have never become fidgety when asked if I meant dollar revenue or ton miles. I unequivocally and definitely have always said "both" without the slightest hesitation or doubt. The growth that we have had, even in light of our many obstacles, makes me more confident than ever.

I. Full-Load Fallacy

All forms of freight transportation have backhaul problems, but for a solution all one has to do is to look to the truck lines and railroads and recognize that there is a backhaul problem. If you will remember, the passenger airlines opposed directional rates but, in my opinion, if the trucks and railroads can obtain a profitable load factor, why can't the airlines?

With proper rates to balance the backhaul, you are selling time of delivery, and full planeloads can be developed so as to keep rates low and still beat delivery time of competing surface transportation.

Our traffic is not fancy or unpredictable like passengers, and since the decision in the Directional Rate Case, our load factors have been excellent. Full loads both ways are almost a reality now, and we've only had a few months to develop new traffic with the backhaul rates.

II. Freight or Express

I am not sure of the average weight of an air express shipment but doubt if it approaches the average weight of the air freight shipments moving by Slick Airways, which is 350 pounds. We don't expect to haul wheat, coal or similar products. However, there is quite a potential in the rail express and L.C.L. movements.

We have very few individual shipments, but, on the other hand, our shippers are, for the most part, large industries that ship by air regularly. Such daily customers as General Motors, Sears, Montgomery Ward, Lederle, E. C. McLellan, Hoffman Television, Philco Television, Douglas Aircraft, and *Time* Magazine, are shipping freight and not emergency or novel movements.

They're shipping by air because they've been sold on the business economies effected.

III. Underpricing the Product

I certainly agree that any business can price itself into bankruptcy. In the early stages we were forced into a rate war which pushed rates down to a level where it is doubtful if we could have made money regardless of the volume. However, I'm sure you will agree that General Motors can, through volume production, produce cars at less cost than can a company manufacturing custom-made cars.

Rates should be compensatory but, on the other hand, in a new industry developmental rates are required in certain instances. Developmental rates attract business that is moving by some other form of transportation and can be distinguished from destructive rates which are below the level necessary to attract the business. It is also destructive to lower the rates on products already moving in large volume by air, which has been done in this industry.

I think our last few months of operation have clearly demonstrated that, with the necessary volume, our rates are compensatory. For example, our volume and profits for the last six months are as follows:

Month	*Ton-Miles*	*Profit* (Freight Operations only)
May	2,871,317	$ 5,145
June	2,963,603	3,929
July	4,053,296	110,878
August ...	4,982,904	131,079
September .	4,851,959	150,943
October ...	5,463,750	175,000 (Est.)

Since July 5, 1950, we have been operating two daily transcontinental flights for the U. S. Navy. Our average return per ton mile from this operation has been 13.44c, compared with a 13.81c return per ton mile from our regular common carrier business. Both returned us a profit, and yet the Navy determined that this service cost them only $25,000 per month more than it would have cost them, had they used the cheapest form of transportation available, and they received 1- and 2-day delivery, compared to 5- to 8-day service.

IV. Delusion of Cost

I know of no one who has projected future air freight operations by looking only at direct operating costs, except the passenger airlines who used the added cost method of attempting to justify even lower rates than those now in existence. We have usually assumed that it would be necessary to have a few accountants, salesmen, and have even included a tax expert, in our projections to help us retain some of our anticipated profits.

I am not trying to be facetious but merely wanted to emphasize that, without a subsidy, we could not afford to be deluded by costs. We haven't exactly been living in tents but, with certain ground improvements, we could become more efficient and save money.

We paid about $50,000 for our surplus C-46 aircraft, including cost of modification, and it's true that this price was considerably under cost. However, from a commerce or national defense point of view, which would have been better— to let these aircraft rot in a field or to put them to use?

Regardless of the answer to that, we have just signed a contract with Douglas for the purchase of three DC-6A aircraft at a sale price of approximately $1,000,000 per plane. This is a pretty high price compared with $50,000 per plane, but our undeluded cost studies show that we will make more money with DC-6A's than we are making with C-46's.

When a turbo-prop plane comes along, I hope we are the first to obtain one because our costs will decrease still further.

V. Airplane Limitations

We are getting very satisfactory utilization; at least poor utilization hasn't caused us to lose money. However, I would like to point out that the first trucks didn't have detachable trailers; the first railroads didn't have sidings on which to spot freight cars. Some day there will be a good freight plane with a detachable pod.

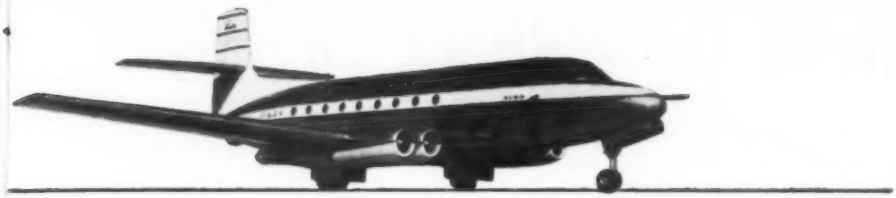
On the backhaul problem, our heavy movement has always been west- and south-bound. With the Korean crisis, the predominant freight movement of government supplies was naturally also westbound. Yet, in July, August, September and October we averaged a 77.4% load factor and 83.3% including our charter operations. With 100,000-pound payload planes, the traffic congestion will be greatly relieved, allowing even better dependability and service.

VI. Meeting Industry's Needs

We have made every effort to determine the needs and desires of the nation's shippers with respect to air transportation. Admittedly, the surface has barely been scratched. That is why I'm convinced of the vast potential available. Yet, with our small sales force limited by lack of capital, we have sold many large industries on the savings that can be had by keeping inventories low.

Also, we are still excited about the perishable market. We have worked hard and long with producers, food brokers, distributors and retailers. We've had many setbacks, but I think you would be interested to know that this year we have hauled 894,297 pounds of one product alone—okra.

Before I close I would like to briefly discuss the dependability angle as affected by crowded traffic and weather conditions. This could become a serious problem if the industry continues to grow, private flyers increase, and no advancement is made in solving these problems. Perhaps, again I'm too optimistic, but I feel that American inventive genius will solve these problems. As we get larger and larger aircraft, the traffic congestion should be relieved, and I am confident of new and improved all-weather aids.



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There is one important man in every airline organization who is reserving his enthusiasm for *jetflight*. He nods approvingly at the Jetliner's smooth lines. He looks forward to air travel from which noise and vibration have disappeared. He knows that the speed and safety and serene luxury of *jetflight* are going to attract more passengers. But he is the comptroller. He wants to see the figures before he cheers.

The designers at AVRO Canada had comptrollers and accountants in mind when they planned the Jetliner. Now, after long and arduous testing of the Jetliner's operation they have some figures that will interest the men who study the profit angle.

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Can Feeder Airlines Do Without Subsidy?

. . . SWA Says It Can and Has Record to Show

IF THE progress of Southwest Airlines in the past few years can be used as a gauge, a number of the certificated local service lines may in the future achieve the aim of every airline—self-sufficiency.

That means running an airline on the investment of the stockholders and the revenues derived from services offered, including a compensatory income for carrying the mail. But no subsidy, as such.

Southwest points to unusual progress since it began operations in 1947. For example, and the table below bears this out, Southwest operated 40% more revenue plane-miles for the first nine months of 1950 than it did for a similar period in 1947, but its operating expenses for the same comparative periods were less this year than in 1947.

This was coupled with substantial gains in non-mail revenues for the same period. This year, January through September, Southwest's passenger and property revenue was $940,427. Three years ago, over the same monthly span, it was $514,789.

Break-Even Need Reduced

For the initial nine months of its fourth year of operation as compared to its first year, Southwest's break-even mail pay need thus was reduced 45%. Instead of needing 60c per mile in mail compensation as it did back in 1947, it needed only an average of 27c this year. And even the latter figure is considerably above the average maintained during the third quarter of this year. In September, for example, the carrier's mail pay need reached a low of 10.6c per mile.

Viewed from another angle, Southwest's progress is seen in the comparative relationship of non-mail revenues to break-even mail pay need. For the first three quarters of 1947, the line's mail pay need practically doubled its total non-mail revenues. Each year since, this picture has changed for the better and for the third quarter of 1950, total non-mail revenues were approximately four to five times greater than Southwest's mail pay requirements.

For the future, Southwest contemplates increasing passenger fares from 5.1c to about 5.7c per passenger mile. At the new level and hoped-for loads of 12 passengers per flight, the line might soon realize about 69c passenger revenue per flight mile. Approximately 4c per mile is developed through other non-mail revenues raising the projected total, aside from mail pay, to 73c per mile. Compare this then to total operating expenses in recent months which averaged about 76c, and it can be seen how close to a compensatory mail service rate Southwest's needs may be.

Southwest Airways' Trend Toward Self-Sufficiency

	First Nine Months of				Increase or Decrease
	1947	1948	1949	1950	1950 Over 1947
Operating Expenses	$1,476,752	$1,698,717	$1,701,085	$1,466,453	— .70%
Revenue (non-mail)	514,789	701,130	881,658	940,427	+82.68%
Break-Even Mail Pay Need	$ 961,963	$ 997,587	$ 819,427	$ 526,026	—45.32%
Rev. Plane Miles Flown	1,281,423	1,750,345	1,824,245	1,802,009	+40.63%
Break-Even Need Per Mile	$ .7507	$ .5699	$ .4492	$ .2919	—61.12%
Deduct: Depreciation on Flight Equipment	.1473	.1346	.1254	.0185	
Break-Even Need Per Mile Excluding Depreciation on Flight Equipment	$ .6034	$ .4353	$ .3238	$ .2734	—54.69%
Pounds of Cargo Carried (mail, express, freight, excess baggage)	754,699	1,362,246	1,768,858	2,068,372	+174.07%
Total Revenue Ton-Miles	1,183,963	1,421,719	1,787,536	1,875,158	+58.38%

Sample data below shows high seasonal loads of Southwest (extending over the six-months summer period*) which SWA believes will be considerably broadened as the irregularity of service problems is further improved under its program of developing airways with additional navigational and landing aids.

	Third Quarter 1950			
	July	August	September	Quarter
Scheduled Revenue Passengers	12,019	12,896	12,943	37,858
Passenger Load Factor	52.52%	56.71%	57.91%	55.69%
Operating Expense	$ 170,713	$ 164,605	$ 162,610	$ 497,928
Total Non-Mail Revenue	$ 128,824	$ 138,863	$ 140,047	$ 407,734
Break-Even Mail Pay Need	$ 41,889	$ 25,742	$ 22,563	$ 90,194
Rev. Plane Miles Flown	219,655	217,319	211,957	648,931
Break-Even Need Per Rev. Mile	$ .1907	$ .1185	$ .1065	$ .1390

* For the six months period April through September the break-even need was 19.7¢ per revenue mile, with a 51% load factor.

Walter H. Beech

Walter H. Beech, Founder Of Beech Aircraft, Dies

Walter H. Beech, 59, president and founder of Beech Aircraft Corporation, Wichita, Kansas, died of a heart attack on Wednesday, November 29, terminating 33 years in aviation. At the time of his death, full scale operations and defense expansion were going on at the four plants which grew from the business he founded in the depression years.

Born in 1891 on a farm near Pulaski, Tenn., Beech's career followed the growth of aviation from a military beginning through barnstorming and into the days of assembly-line production.

Beech enlisted in the Army Air Corps when the United States entered World War I and was assigned to Kelly Field, San Antonio, Texas as a motor expert and pilot. He remained in the service at the close of the war with the 328th Aero Squad of the Signal Corps at Rich Field, Waco, Texas.

In 1920, he left the service for exhibition flying and in 1922 became test pilot and sales representative for Swallow Airplane Company. In 1924, he won the Admiral Fullam Derby at St. Louis and in 1926, his last year as a competitive flyer, won the Ford Reliability Tour.

In 1925, Beech established his first manufacturing company, the Travel Air Company. Production was centered on a light three-seater commercial plane and the first plane flew in March, 1926. In December, the company purchased a seven-acre plant and production accelerated until in 1929 the Travel Air Company made over 900 planes, more than any other U. S. manufacturer.

In these years, Beech served as general manager of the company, designed the first commercial plane with an air cooled motor completely

SECRETS ARE COSTLY!

In a competitive economy such as ours, trade secrets are usually guarded jealously. But, when national security is at stake, technical secrets become the common property of the members of a vital industry such as aviation. Guarded secrecy is too costly—too time consuming. That's why the National War Production Council was organized during World War II.

Today, under a program evolved by the Committee on Guided Missiles of the Research and Development Board of the Department of Defense, highly important developments are made available immediately to a select list of contractors, universities, technical institutions and government agencies connected with the missile program.

Here's how it works. At Bell Aircraft, or at any other major missile contractor or agency, an important contribution to the guided missile program may be developed. At once, it is relayed to other plants and agencies where it might provide the answer to a challenging problem. As a result, time—the most essential element—is saved. Costly duplication is avoided. Taxpayers' dollars are conserved and can thus be applied to other vital projects affecting our security.

From experiencing the incalcuable value of this information service as both contributor and beneficiary, Bell Aircraft appreciates fully the efficiency and foresight of our leaders in defending the American way of life. We are proud to be a member of a team where secrets are shared with the front line defense.

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faired in, made the first cross country flight entirely by instruments, designed the Travel Air "Woolaroc" which won the Dole prize in 1927 and developed the Travel Air "Mystery S," 1929. Thompson Trophy winner.

When Travel Air merged with Curtiss-Wright, Beech became president of the Curtiss-Wright Airplane Company and vice president of Curtiss-Wright Corporation. In 1931 the Wichita plant was closed due to worsening economic conditions and late in 1931 Beech resigned and returned to Wichita to invest all his funds in starting the Beech Aircraft Company in the abandoned Travel Air Plant. His associates were the people who had been with Travel Air, among them his chief engineer and present vice president of Beech Aircraft Corporation, T. A. Wells.

The greatest expansion came during World War II when more than 7,400 Beechcrafts were produced. Employment at the Beech Aircraft Corporation plants now stands at over 4,000 and, since the opening of the plant in 1932, more than 8,000 twin engine planes and 4,000 single engine planes have rolled off final assembly.

Beech is survived by his wife, Olive Ann Beech, secretary-treasurer and member of the board of directors of the Beech Aircraft Corporation, and two daughters, Suzanne Mellor Beech and Mary Lynn Beech.

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Lord Tedder To Be Speaker At Wright Day Dinner

Marshal of the RAF Lord Tedder will be the principal speaker at the annual Wright Day Dinner of the Aero Club of Washington, D. C., on December 16. Presentation of the 1950 Wright Memorial Trophy will be made to Grover Loening for "public service of enduring value to aviation in the United States."

Lord Tedder, Chief of the British Air Staff, is in this country as a member of thte Standing Group of the Military Committee of the North Atlantic Treaty Organization. He served as Deputy Supreme Commander of SHAEF as second in command to General Dwight D. Eisenhower.

PEOPLE IN THE NEWS

Dr. Hugh L. Dryden, Director of the National Advisory Committee for Aeronautics, has been selected as the recipient of the Daniel Guggenheim Award for 1950 for "outstanding leadership in areonautical research." The formal presentation of the award, which is jointly sponsored by the American Society of Mechanical Engineers, the Institute of the Aeronautical Sciences and the Society of Automotive Engineers, will be made January 29 at the annual IAS Honors Night Dinner in New York.

Dr. Dryden

Robert A. Lovett, who had been serving as Under Secretary of Defense under a recess appointment, was confirmed by the Senate after a unanimous vote of endorsement by the Senate Armed Services Committee.

John Peckham, New York attorney, has been named director of the Compliance Division, National Production Authority.

Robert L. Glenn, director of the Materials-Manpower section of the Transportation Office, National Security Resources Board, has been appointed by the National Production Authority to assist with the organization of a Transport Equipment Division.

Edward F. Jones, formerly chief correspondent for **Life** magazine in Washington, has been made special assistant to **W. Stuart Symington,** National Security Resources Board chairman, succeeding **Stephen F. Leo. James R. Aswell,** on leave of absence from the public relations firm of Hill & Knowlton, has been named special consultant to the chairman succeeding **Albert Abrahamson.** Aswell is succeeded as NSRB director of information by **Scott Hershey,** formerly his assistant.

Aviation Calendar

Dec. 16—Institute of the Aeronautical Sciences 14th Wright Brothers Lecture, U. S. Chamber of Commerce Auditorium, Washington, D. C.

Dec. 16—Wright Brothers Memorial Dinner, Statler Hotel, Washington, D. C.

Jan. 2-7—Miami Aviation Week, Miami, Florida.

Jan. 6-7—Annual Miami Air Show, Opa Locka Airport, Miami, Florida.

Jan. 8-10—8th annual Miami-Havana air cruise.

Jan. 8-12—Society of Automotive Engineers annual meeting engineering display, Hotel Book-Cadillac, Detroit, Michigan.

Jan. 9-26—Third annual Institute of Industrial Transportation and Traffic Management, American University, Washington, D. C.

Jan. 11—Aviation Writers Association dinner, Hotel Statler, Washington, D. C.

Jan. 22-26—American Institute of Electrical Engineers winter general meeting, Hotel Statler, New York, N. Y.

Jan. 29-Feb. 1—Institute of the Aeronautical Sciences 19th annual meeting, Hotel Astor, New York, N. Y.

Feb. 14-16—National Aviation Education Council meeting, Atlantic City, New Jersey.

March 16—Institute of the Aeronautical Sciences sixth annual flight propulsion meeting, Hotel Carter, Cleveland, Ohio.

April 16-18—Society of Automotive Engineers aeronautic meeting and aircraft engineering display, Hotel Statler, New York, N. Y.

April 19-12—Airport Operators Council annual meeting, Hotel Peabody, Memphis, Tennessee.

April 23-26—American Association of Airport Executives annual meeting, Minneapolis, Minnesota.

April 24-26—Air Transport Association annual engineering and maintenance conference, Drake Hotel, Chicago, Illinois.

May 23-24—American Society for Quality Control fifth annual convention, Hotel Cleveland, Cleveland, Ohio.

May 24-25—Society of the Plastics Industry annual national meeting, Greenbrier Hotel, White Sulphur Springs, West Virginia.

June 3-8—Society of Automotive Engineers summer meeting, French Lick Springs Hotel, French Lick, Indiana.

June 18-22—American Society for Testing Materials annual meeting, Atlantic City, New Jersey.

Sept. 10-14—Instrument Society of America sixth annual instrument conference and exhibit, Sam Houston Coliseum, Houston, Texas.

International

January 2—ICAO Legal Committee meeting, Mexico City.

February 13—ICAO Airworthiness Division meeting, Montreal.

February 20—ICAO Operations Division meeting, Montreal.

April 3—ICAO Communications Division meeting, Montreal.

March —World Meteorological Organization Congress, Paris.

June —1951 Paris International Aircraft Exhibition, Grand Palais and Paris airport, Paris.

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Between the Lines:

How About The F-84F, General?

By James J. Haggerty, Jr.

WE HAVE mentioned several times in these dispatches that the Army would like to have more of a say in the design of fighter aircraft which are to be used for tactical work in support of ground troops. At present the ground forces have nothing to say about the size, shape or capabilities of the fighter planes which fly support for them and it's hard to see why they should.

But, probably anticipating some such likelihood as a result of next month's scheduled investigation of tactical air power, Gen. Mark W. Clark, Chief of the Army Field Forces, has set down on paper just what type of fighter he considers a "good" ground support plane. Clark outlines his specifications in the current issue of *Air Force* Magazine, the official organ of the Air Force Association. They include:

"a) carry a 9,000-pound load of ammunition—bombs, rockets, bullets, etc.;

b) have sufficient accuracy and stability to hit the target;

c) have adequate communications with ground officers directing strikes;

d) carry enough fuel to give it at least two hours over the battle area;

e) take off in 3,000 feet;

f) operate in any kind of weather, day or night."

We feel that a number of engineers in fighter design work would give him an argument about his design. For one thing, with its 9,000-pound ammunition load, high fuel load and tremendous power requirement the plane would be the biggest fighter ever built. A friend of ours who is familiar with these things worked up a quick estimate and guessed it would cost about $2,000,000 per plane in quantity production, or roughly ten times the cost of a present ground support fighter.

Sounds Like F-84F

But what stands out in Gen. Clark's specification sheet is how closely the requirements parallel the charateristics of a fighter now in development, a prototype of which is already flying. We refer to the Republic F-84F, a swept-wing version of the F-84 Thunderjet which is now the standard ground support plane, and which, incidentally, was designed under the supervision of the Air Force, an organization for whose fighter design capabilities Gen. Clark appears to have little respect.

Paralleling the Clark spec sheet, we'll run down the F-84F's design characteristics. First, the general wants a 9,000 pound bomb and rocket load; the "F" can carry 8,800 pounds. Close enough? Second, it has to have accuracy and stability. There shouldn't be any question about that. It has now become, as a result of very extensive test work and not just isolated experiments, more or less doctrine that the jet airplane is the most stable and most accurate gun and rocket platform that ever flew. The Lockheed F-80's, earliest of our jets, proved that in Korea and it is being proved every day in the USAF's test program. The F-84F, despite its swept wing, is not expected to be any less stable or less accurate.

Point three, adequate communications. This is a simple requirement. In today's war-service jets, the "80's," the pilot may maintain radio liaison with the ground controller, the target spotting plane working with him, his own base and his own flight or group. Who else do you need? The F-84F will have a communications set-up at least as good, probably better. But, even if something better is required, that is a problem only of radio improvement, not of fighter design.

How Far and How Heavy

On the fourth point we run into trouble—two hours' target time. This depends, of course, on how far you go to the target and how heavy you were on takeoff. Let's assume the general means a typical Korean mission with an effective firepower load. If so, the F-84F can stay in the target area between an hour and a quarter and an hour and a half, not too far off the requirement. If the general means two hours' target time with that 9,000 pound ammunition load and a 3,000 foot takeoff, he is being, to this observer and a couple of more qualified observers to whom we talked, completely impractical—the fuel load required and the power needed to lift it and the ammunition in 3,000 feet would make the plane a designer's nightmare.

Item five, the 3,000-foot takeoff also ties in here. If the general is talking about a built-in power plant to get the plane off in that distance, he is imposing a severe penalty upon his design by demanding about three times as much power for takeoff as is needed for the rest of the mission. If he is willing to accept RATO (rocket assisted take off) power, then the F-84F can meet his 3,000 foot requirement with an effective fuel and firepower load.

As for the last item, operating in any kind of weather, it is questionable whether fighters will ever be able to give close support in zero-zero weather. At present, the Air Force is making rapid strides in developing low-visibility support tactics. By the time the F-84F is ready for service, they will undoubtedly have progressed further. A big item here is the development of new pinpoint radar equipment. If it is developed, they can put it in the "F"; if it is not, Gen. Clark's design requirement can't be met anyway.

Meets Five of Six Counts

So, in summing up, we find that the F-84F meets the general's specifications on five of the six counts. It falls short only in the endurance category, but bear in mind that later developments may even permit it to meet that one. These developments, however, would probably be in more efficient power plants, not in cluttering up the design with additional built-in fuel. One other point might be considered here. You can build ten of these normal USAF-developed fighters for the price of one of the Clark Specials. Therefore, the plane availability of ground support fighters would be increased tenfold, assuming you had the same amount of money in either case for procurement. If we had ten times as many jets in Korea now, target time wouldn't be very important—you could keep flights of planes "loitering" in the target area indefinitely by relieving them, say, every hour or hour and a half.

One final point. The F-84F is now in preliminary production stages; it should be in operational service in about 18 months. The plane the general is talking about is probably five years from service, for we assume that he is recommending a brand-new design from the ground up. At least that is what a number of his subordinates are plumping for. That leaves a gap of three and a half years wherein logical developments of the F-84F and other ground support fighters might normally be ex-

pected to go well beyond the characteristics laid down by Gen. Clark. Expected future developments, particularly in power plants, make the attainment of Clark's specifications seem not at all improbable, by developing existing types to the utmost. Trying to meet them with a 1950 design, however, wherein built-in fuel capacity would compensate for the comparative inefficiency of todays' jet engines, seems to offer nothing but trouble.

INDUSTRY PERSONNEL

Nathan C. Price, a former Lockheed Aircraft Corp. engineer, has rejoined the company's staff. Developer of the XJ-37 jet engine while with Lockheed, he followed the engine when the project was transferred first to Menasco Manufacturing Co. and then to Wright Aeronautical Corp.

Robert C. Donovan has been appointed chief of design for the Chance Vought Aircraft Division of United Aircraft Corp. at Dallas. Formerly a project engineer for Douglas Aircraft Co., he has had nearly 20 years of experience in aeronautical engineering.

Donovan

George N. Mangurian, former supervisor of structures projects for The Glenn L. Martin Co., has been appointed as chief of structures for Northrop Aircraft. He succeeds **A. M. Schwartz,** who has been made staff assistant to **John K. Northrop.**

C. R. Moore, formerly aircraft electrical design evaluation engineer with the CAA and before that with the Douglas Aircraft Co., has been appointed manager of the west coast office of Jack & Heintz Precision Industries, Inc.

MILITARY PERSONNEL

Col. Frederick C. Ott, former commander of the 3740th Basic Military Training Group, Sheppard AFB, Texas, has been assigned to command the new AF Training Center at the former Sampson Naval Training Base, Sampson, N. Y.

Rear Adm. Calvin M. Bolster, Assistant Chief of the Navy Bureau of Aeronautics for Research and Development, and **Capt. James L. Hight** of the Equipment Laboratory of the Air Force's Air Materiel Command, were recipients of the National Air Council's 1950 awards for outstanding achievement in aviation research.

PRODUCTION SPOTLIGHT

NAA Starts at Columbus: **North American Aviation** will start production of spare parts at its new Columbus, O., plant, former home of **Curtiss-Wright Corp.'s** Airplane Division, this week. About 50 carloads of floor jigs and parts sub-assemblies were shipped from NAA's Los Angeles area plants to Columbus. NAA expects to hire about 2,000 additional workers for the spares program in the first six months of operation.

Aluminum Production Boost: *General Services Administration has concluded two new agreements with industry which will add 200,000 tons of aluminum production annually to the country's stockpile. Kaiser Aluminum and Chemical Corp. has agreed to sign a contract with GSA whereby Kaiser will turn out an additional 100,000 tons yearly by building one or more new plants at a cost of $70,000,000. Kaiser's new plants will be in the south, but the exact location was not disclosed. The expansion would give the company an annual aluminum output of 250,000 tons a year.*

Reynolds Metal Co. will also build a new plant which will increase the company's aluminum production by 75,000 tons a year. In addition, Reynolds will increase its production at its Jones Mill, Ark., plant by 25,000 tons.

GSA will buy the extra aluminum for stockpiling purposes. The 200,000 tons of new production is in addition to an earlier boost of 79,000 tons a year obtained when Aluminum Company of America agreed to reactivate its idle aluminum production facilities at Massena, N. Y., and Badin, N. C.

F-86A Production Completed: **North American Aviation** has completed deliveries of its **F-86A** jet fighter to the Air Force; the last delivery was made on schedule. North American is now in production on two later models of the F-86, the "D" and the "E". The "E," which was moved in behind the F-86A on the production line as assemblies and components were completed, is the successor to the "A," but it has new controls, including an "all-flying tail" and "artificial feel." The F-86D differs from the "A" and "E" models in general configuration; it is an all-weather fighter powered by the latest model of the **General Electric** J-47 jet engine, the **J-47-GE-17,** equipped with an afterburner and developing in the neighborhood of 8,000 pounds' thrust.

F-84F Flight Tests: *Republic Aviation Corp.'s F-84F, swept-wing, more powerful version of the Thunderjet now in USAF service, has completed Phase Two of its flight test program at Edwards AFB, Muroc, Calif. Phase Two consisted of 39 test flights, 18 by the USAF and 21 by Republic. The test phase was completed in 19 days. After finishing the Phase Two work, the prototype F-84F (which will be a production airplane) had flown 64 flights totaling over 70 hours.*

Aircraft Wages Up: Expansion of the aircraft industry is permitting employes to work longer hours and earn more than employes in other "durable goods" industries, a Bureau of Labor Statistics survey discloses. Average weekly earnings in the aircraft and parts industry during September were $68.81 compared with $64.90 in durable goods industries. Moreover, average earnings were up about $3.50 a week over the June average.

Starting wages are up, too. In June, more than half the reporting plants paid female starters under $1.05 an hour and 47% paid male workers less. Now, fewer than one-fourth of the reporting plants pay less than $1.05 to starting unskilled help.

The following chart illustrates the rise in earnings in the industry and the earnings comparison with durable goods employes:

	Average Weekly Earnings		Average Hourly Earnings	
Month	Durable Goods	Aircraft & Parts	Durable Goods	Aircraft & Parts
September, 1950[1]	$64.90	$68.81	$1.560	$1.650
August	64.33	68.58	1.539	1.629
July	62.85	66.34	1.533	1.614
June	62.86	65.32	1.522	1.605

[1] Preliminary. Source: U. S. Bureau of Labor Statistics

—J. J. H.

First in SAFETY

How to decelerate the landing run of jet planes on small fields was the problem. Parachutes seemed to be the obvious brake, but the rushing air tore the chutes apart. Then, the Switlik Parachute Company produced a drogue parachute using ribbons of nylon rather than a solid cone. The ribbons permitted some of the rushing air to escape but at the same time supplied sufficient resistance to brake the jet bomber. The chute is stowed at the base of the vertical fin and is released by the pilot from a cockpit control.

Switlik parachute brakes help make it possible for the jet bombers to operate safely from small fields when giving support to ground troops in combat.

One of the Switlik *firsts* from their research for greater safety.

SWITLIK

PARACHUTE COMPANY, INC.

LALOR AND HANCOCK STREETS, TRENTON, NEW JERSEY, U. S. A.

Convair Producing 240-A As Twin-Engine Market Bid

A NEW version of the Convair Liner, the model 240-A, has been started in production at the San Diego plant of Consolidated Vultee Aircraft Corp. Principal changes in the new model will be the raising of maximum gross takeoff weight to 43,575 pounds, an increase of 1,785 pounds, and use of the new Pratt & Whitney R-2800 CB-16 engines.

No official indication of the number of airplanes to be built was given by Convair, but reliable sources state that some 20 planes will be built with the first two to be of the executive type. Principal initial customers would be three foreign airlines, SABENA, Orient Airways and KLM Royal Dutch Airlines.

The new gross weight and expected improvements in performance re-emphasize the "stretch" built into current transports. Although Convair Lines for commercial use have not been in production recently, the line has never shut down since the company is still producing USAF T-29's, the navigation-trainer version of the commercial airplane.

Improvements

Other improvements in the 240-A include improvements in the air conditioning and pressurization systems, reworked nose landing gear, fuel tanks in the outer wing providing 400 gallons more fuel, added safety features and electrical system modifications aimed at simplifying maintenance. Specifically, the electrical system will feature easily removable panels to provide ready access to system components.

Improved pressurization is aimed at insuring adequate capacity to handle high-altitude flights brought about by the eventual adaptation of the Allison 501 turboprop engine to the current airframes. The initial Convair Turboliner, powered by the 2,750-horsepower Allison 501, is now being readied for flight in San Diego, may well have flown by this time. The 240-A is being specially stressed to facilitate the switch-over in engine power, and eventually kits will be available for field modification of the earlier Convair Liners.

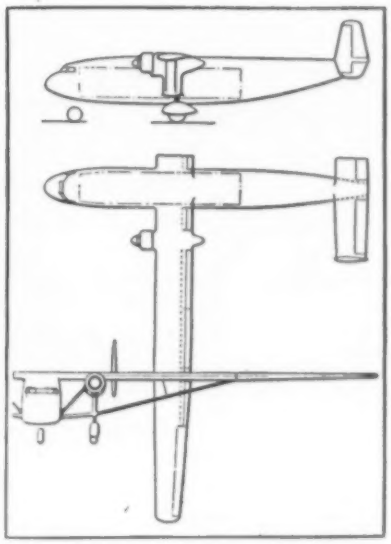
In announcing Convair's plans to produce the 240-A, Floyd B. Odlum, chairman of the board of Consolidated, stated that this refutes "speculation by others that Convair intends to withdraw from the commercial transport field." Certainly the modified airplane will enhance Convair's position in the twin-engine transport market.

The chart below provides an interesting commentary on the competitive picture in this particular market. Specifically it shows the major characteristics of the Convair-Liner and Martin 2-0-2 and 4-0-4 in the most advanced early types and current offering.

Postwar Twin-Engine Transport Comparison

	Convair 240	Convair 240-A	Martin 2-O-2	Martin 4-O-4
Gross TO Weight	39,000 lbs.	43,575	39,900	42,750*
Engine Horsepower (Takeoff)	2400 hp	2400	2400	2400
Maximum Landing Weight	37,619	N.A.	38,000	41,000
Airspeed Limits				
Maximum cruise	285 mph-TI	290[1]	255	280[2]
Never exceed	320 mph-TI	N.A.	292	N.A.
Passenger Capacity	40	40	36	40
Dimensions				
Length	74' 8"	74' 8"	71' 4"	74' 7"
Span	91' 9"	91' 9"	93' 3"	93' 3"
Height	26' 11"	26' 11"	28' 5"	28' 5"

*43,900 pounds using 108/135 grade fuel.
[1] Normal at 1,200 hp. and 12,000-ft. altitude.
[2] Normal at 1,200 hp. and 18,000-ft. altitude.
N.A.—Not Available.



Skinny Wing—French firm of Hurel-Dubois is studying a commercial feederline transport using the type of very high aspect wing ratio of 30 featured on the HD-10. Span of this model would be 65 feet and length 47 feet. The HD-10 is reported to be somewhat delicate on the controls but M. Leon Dubois considers that the troubles due to the precariously small C. G. range of the HD-10 need not be so bad in this twin-engined transport.

What AF Wants In Cargo Plane Types

To the aircraft designer or manufacturer who would like to know what the Air Force wants in the way of future cargo type aircraft, Lt. Col. Lucian S. Rochte of Air Materiel Command provided some of the answers in an address before the recent Air Cargo Day meeting in New York. Rochte, chief of the cargo branch of AMC's Engineering Division, outlined what his office considers the basic design requirements for future military cargo types.

In the first place, Rochte said, any of the three power plant types—piston, turboprop or turbojet—may be employed, depending upon the specific use of the plane. For instance, he said, troop-carrier aircraft will probably be piston powered for some time to come; the low-altitude, low-speed requirements for paradrop operations make it doubtful that turbojets or turboprops could fit this application. Rochte sees a trend toward turboprop and turbojet power for longer-haul aircraft, however.

Here are the design characteristics

Design Trends

By Richard G. Worcester

THOSE of us who are too busy to interrelate long technical papers on the relative merits of one type of engine over another will enjoy **Robert Insley's** method of comparing various civil piston engines. The following table carries his principle a stage further into the range of turbines. Most of the turbine figures relate to their potential because, of course, none is in service at the present time.

	Radial	Inline	Diesel	Turboprop	Turbojet
Minimum weight	3	4	5	2	1
Minimum fuel consumption	2	2	1	3	5
Minimum first cost	2	2	3	2	1
Minimum service cost	2	2	3	2	2
Minimum size	4	3	5	2	1
Maximum life	1	1	1	1	1
Maximum dependability	1	1	1	1	1
Maximum fuel availability	1	1	1	2	2
Minimum vibration	3	3	4	2	1
Minimum fire risk	2	2	1	1	1

The three columns of figures on the piston engines all agree with Insley's conclusions except we have given an edge in favor of the inline engine over the radial for minimum size by interpreting this as frontal area. The results show the turbojet as best with 16, the turboprop next with 18, the radial and inline are together with 21 and the compression ignition engines come last with 25 marks. The trouble with the table is that one adverse characteristic like the fuel consumption of the turbojet can cancel out so many of the others.

•

Fringe industries in aviation on the whole do a fine job and many material suppliers put their best work into the exacting, and, in many cases, commercially unprofitable, aviation orders. Many companies lose money on aviation contracts and reckon only to break even by considering the increased industrial knowhow on materials. The material which aircraft designers use today housewives may use tomorrow.

But there are a few cases where fringe industries could do more. Take, for instance, the wire industry who could easily undertake much of the basic research which aircraft companies now must do for themselves. What is even worse is that some aircraft companies are using laboratory space to determine elementary wire performance like the resistance of the insulation to temperature which must exist in the files of the wire companies. In the national interest there ought to be an inquiry into all possibilities of research duplication which the taxpayer is paying for twice.

•

Boeing's research on small gas turbines is an interesting example of the way things work. When the company started on the B-47 in about 1942 they initiated a small program of jet component testing to gain some general knowledge about the new prime mover.

This program gradually expanded until a few years later the cost was getting so high that the company was obliged to consider a more direct application to help defray expenses. The engineers soon found that by putting the parts together they had a useful small engine which the Navy, with typical shrewdness, backed to the hilt.

Now they have over 3,000 hours' running time and the engine may soon be flying in one of the Cessna lightplanes. The engine has also been towing a 65,000-lb. truck and has been installed in other types of vehicles. As a matter of interest they are presently using a 20 thousandths' clearance between the turbine buckets and the shroud, and between the impeller vanes and the compressor casing.

Rochte would like to see in future military cargo aircraft:

1. Cargo compartment—rectangular in profile with integral loading ramp and doors. Maximum interchangeability of cargo and passengers is mandatory. Floor must be of rugged construction and truck-bed height with tie-down fittings on a 20-inch grid pattern both on the floor and cargo compartment walls.

2. Landing gear—must be rugged and free of maintenance problems. Must have sufficient bearing area to permit operation from mud and sand surfaces. Track-type landing gear, however, is apparently not the answer; the weight penalties more than offset the advantages.

3. Crew compartment—maximum visibility, latest cockpit standardization specifications and a seating arrangement which places all crew members as close together as possible.

4. Maintenance—engines must be located so that they may be changed easily and rapidly. Hydraulic, oxygen, fuel and oil lines must be readily accessible, as must radio and radar equipment.

5. Emergency features—designers should give serious thought to hanging the maximum amount of fuel externally under the wing, reducing crash-fire hazard. All fuel, as well as other inflammables like oil, hydraulic fluid, de-icing alcohol, etc., should be located as far from the fuselage as possible. The fuselage construction should incorporate the maximum in crew and passenger protection. Too little attention has been paid to the incorporation of structural members in the nose; this can be done without excessive weight penalty. Rochte lauded the Chase XC-123 assault transport as an example of good built-in crew protection.

Rochte did not list performance specifications, since they are variable for the different types of cargo aircraft, but he stated generally that cruising speeds and service ceilings should be reasonably high, stalling speeds, takeoff and landing distances low and range-payload relationships flexible.

The Air Cargo Day meeting, jointly sponsored by the American Society of Mechanical Engineers, the Institute of the Aeronautical Sciences and the Society of Automotive Engineers, was held Nov. 28 as part of the ASME annual meeting.

Technical Notes

In addition to the list of formidable disadvantages of the wing-tip tank given here a month ago is a new one being experienced in Korea—which is the difficulty of finding satisfactory pumps to raise fuel to the tanks when refueling in the wing-folded position.

Grumman

"Most beautiful sight I've ever seen!"

These are the words a pilot used to describe the GRUMMAN ALBATROSS which had just picked him up from the sea. His sentiment is shared by other fliers, too, for in the months it has been operating, the ALBATROSS has been expert at cheating Davey Jones. Employed by the Air Force for air rescue and by the Navy as a utility amphibian, this versatile aircraft displays traditional Grumman ruggedness and dependability.

GRUMMAN AIRCRAFT ENGINEERING CORPORATION, BETHPAGE, LONG ISLAND, NEW YORK

Contractors to the Armed Forces

CAA to Evaluate Three Pictorial Computer Designs

By WILLIAM D. PERREAULT

IN MID-DECEMBER CAA will start evaluation tests on the first of three pictorial computer designs. The pictorial computer will use information taken from the omni-range stations and distance measuring equipment to provide the pilot with navigation information. Specifically, it presents a pictorial display showing the aircraft position in relation to a desired course and its position along that course.

Contracts totaling some $150,000 have been let by CAA's Technical Development and Evaluation Center for 15 computers, five each of three different types. The development contracts, let by CAA in behalf of the Air Navigation and Development Board, are with:

Aero Electronics Co., 1902 West Division St., Chicago 22, Illinois;

Arma Corporation, 254 36th St., Brooklyn 32, N. Y., and

Sperry Gyroscope Co., Great Neck, L. I., N. Y.

ANDB hopes that "this type of computer will be considerably more flexible than the course-line computer, particularly in the terminal area. While the pictorial computer will serve some of the purposes of the course-line computer, the functions of the two units are somewhat different.

The course-line computer, which for the past few years has been prominently mentioned along with the omni-directional radio range and distance measuring equipment, provides the pilot with left-right needle information with which to fly to destinations not actually equipped with an omni-range.

Gives Map Indication

The pictorial computer will use the same type information but will translate it into movement of an indicating marker over the face of a map of the area. The physical characteristics of the map holder, the manner in which maps are handled and versatility of indications are the factors which make up the difference between the three computers under development.

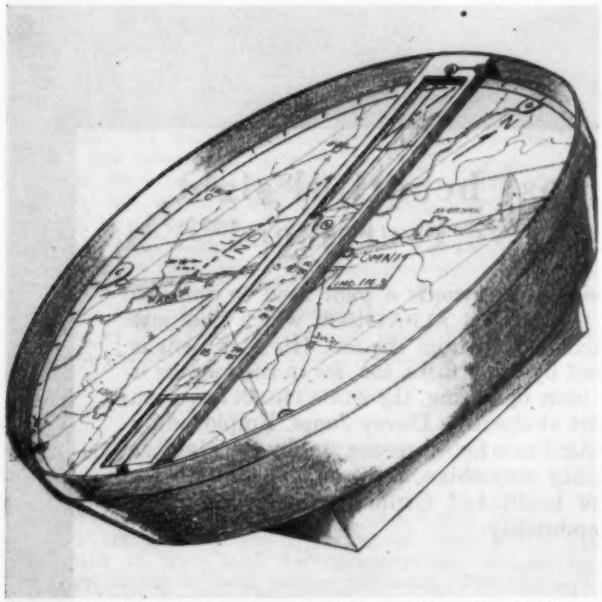
The Aero Electronics PC is the first to be tested. This unit consists primarily of a portable instrument about 12 inches in diameter with an active face 10 inches in diameter. It is about three inches thick, weighs less than 10 pounds. Around the outer periphery (see drawing) are radial markings.

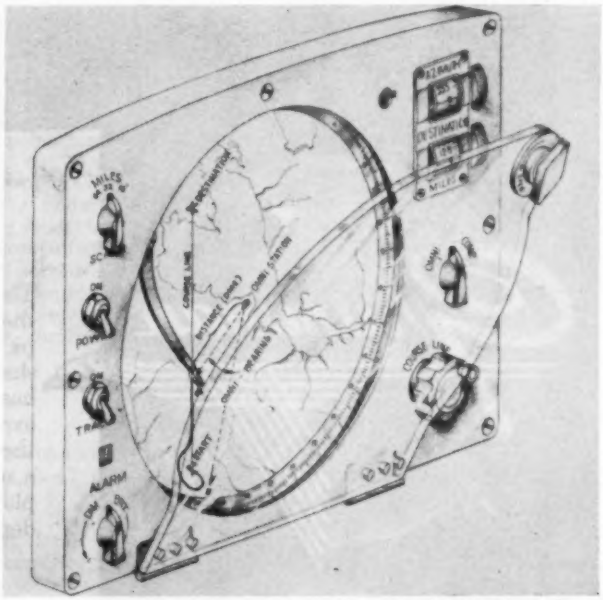
World area charts, sectional or instrument approach charts may be inserted under the plastic face of the computer. These maps are made to different scales: 1:250,000; 1:500,000 and 1:1,000,000. On a practical basis this means one inch equals 4, 8 or 16 miles.

The Aero Electronics computer is normally stored out of way in the cockpit when not in use. When used it is placed in the pilot's lap and the map inserted. For enroute navigation the maps using the 16-miles-to-an-inch scale will probably be used. Near the terminal the approach chart would be inserted.

How Unit Operates

When the pilot tunes in the nearby omni-range station and the distance measuring equipment the computer is fed data from these installations. The signals from these units coupled with





PICTORIAL COMPUTER scheduled for mid-December testing, manufactured by Aero Electronics Co., is shown at left. It will cost about $500 in production quantities and weigh less than 10 pounds. It is 10 inches in diameter (instrument face) and about three inches deep. The map shown on the face of the computer is manually inserted. The pilot holds the computer in his lap while using it. The second series of computers, built by Sperry for April, 1951 delivery, is shown on right. Aircraft position is traced by the marker mounted on the end of a cantilever beam controlled from the rear of the chart. Choice of scales is made with the selector in the upper left corner for 16, 32 or 64 miles. The course line knob, lower right, permits the pilot to orient the map so that the marker always moves up the instrument. When using the course line function of the computer the center switch selects the operation and the azimuth and distance knobs are used to provide the required supplemental data.

data cranked into the computer, cause the marker on the face of the computer to start tracking across the map marking the exact path of the airplane. This PC is oriented in such a way that North is always "up" on the dial. Because of this characteristic the marker might move up and down the instrument face or sideways during a particular flight. While aircraft position along the path is shown, there is no indication of aircraft heading in relation to the station.

The first two computer types depend on special maps made up to fit into the instrument in such a way that the omni-range station rests in the center of the dial. Coast & Geodetic Survey is now making up suitable maps of the Terre Haute and Indianapolis ranges. This does not require new art work but simply printing on paper of the proper size centered around the station.

These new maps will be 12 inches square, black on white. Maximum elevation areas will be marked. A compass rose will be superimposed on the map around the station and starting five miles out azimuth radials will be printed at five-degree intervals. Color coding the maps will probably be used to signify various scales.

Sperry's Version

The rotatable panel pictorial computer, under development by Sperry, is panel-mounted rather than portable. It provides the same basic functions as the AE unit but is also connected into the compass so that aircraft heading is provided. Another important feature of the Sperry unit is that it will permit the map to be rotated so that magnetic north can be in any direction. This means that the pilot can always align the map in such a way that aircraft progress will always be toward the top of the instrument or in any other chosen direction.

Finally, the Sperry unit will provide for attachment of a course line (also called off-course) computer. This would be supplementary equipment.

By using charts printed on aluminum sheets, the Sperry unit will be able to leave a trace on the map showing the course made good.

Sperry is developing five of this series units at a cost of about $25,000. They will weigh about 20 pounds, have about the same diameter as the lap model but be relatively deep, some 6-8 inches. First delivery scheduled for April, 1951. Production models, estimates indicate, would cost $1,000 plus $500 for the CLC attachment.

The Arma pictorial computer is the

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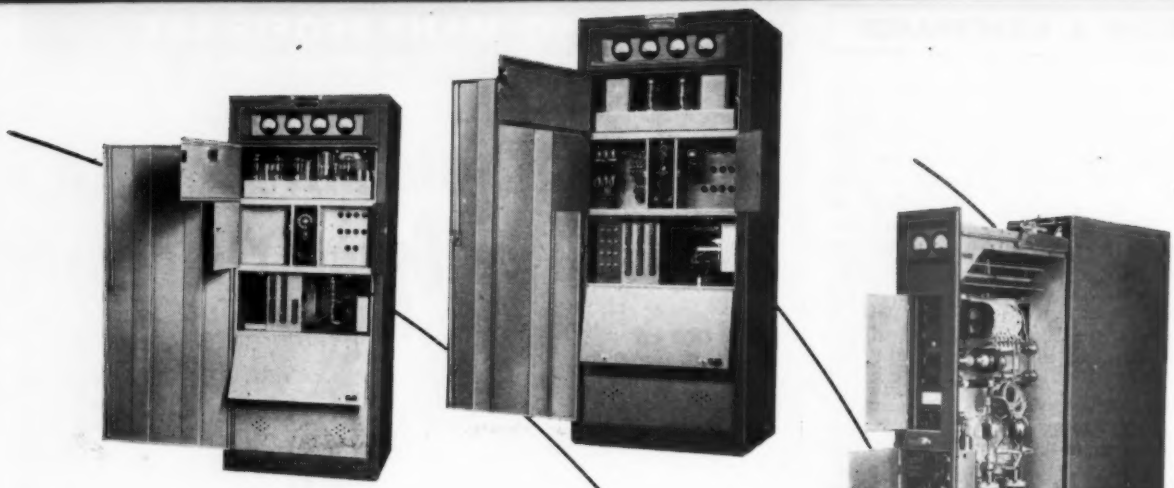

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All components meet the latest JAN (Joint Army-Navy) specifications. This means maximum resistance to wear, corrosion, humidity, fungus, temperature, and time. Thus, equipment failure is minimized and maintenance and replacement costs are reduced to the absolute minimum.

Temperature—equipment operates dependably from −55°C to +75°C (−67°F to +167°F).

Humidity—equipment performs normally at 100% humidity with condensation.

Altitude—equipment operates at full power at altitudes up to 10,000 feet (3,048 meters), and withstands shipping altitudes up to 30,000 feet (9,144 meters).

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A flexible, multifrequency station can be formed from a combination of 96D and 96-200C Transmitters, one or two 50H Modulators and a 36D Rectifier. This provides for either simultaneous transmission on several frequencies or the selection of an individual frequency best suited to your particular communication problem.

NEW... FRONT CONTROLS PROVIDE ADJUSTMENT CONVENIENCE

All controls are located on the front of the transmitter: all R. F. stages and antenna tuning, under and overload and tone-keying adjustments, selection switch for external frequency shift excitation, rotary meter switch, exciter output control.

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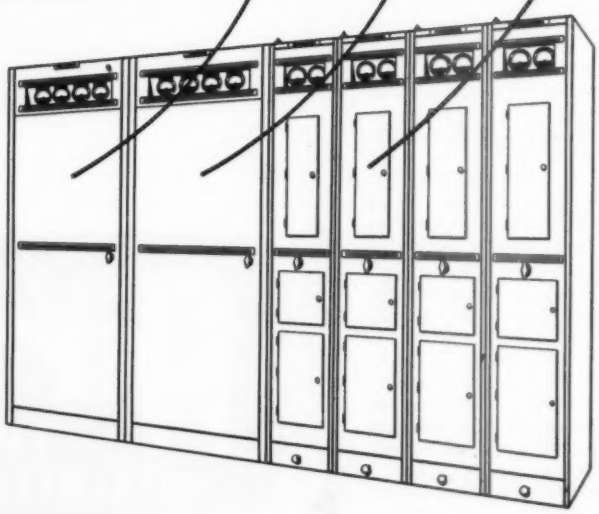

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ultimate in automatic instruments. Within this panel-mounted unit is a 35-millimeter film containing up to 150 maps of the area covered by a given route. When the pilot selects the omni-range station it automatically tunes in the distance measuring equipment and selects the proper map for that station. The map is projected from the film doing away with the necessity of the pilot handling the map. Otherwise the features are much the same as the Sperry unit.

First Units in June

According to the ANDB, this panel unit will be 11½ x 13 inches in frontal area and about 16 inches deep. Weight is estimated at about 25 pounds. Development cost including five models is approximately $100,000. First deliveries are scheduled for June, 1951. Production models would cost about $1,800.

The two panel-mounted computers are equipped with flag alarms. The flag appears if something goes wrong electrically with the circuits or in the event that the aircraft gets out of range of the station or behind terrain where the VHF signals are blocked off.

The ANDB report on omni-range-DME accuracies indicate that accuracies of plus or minus 2-3 degrees in azimuth and plus or minus 0.2 miles in distance can be expected in all types of terrain conditions. The additional distance errors due to the computer will probably be less than plus or minus ½ mile and bearing errors not more than plus or minus ½ degree, it is claimed.

The pictorial computers show considerable promise in progress toward symbolic displays which must be perfected for other applications outlined in the RTCA report. There are some negative factors about the computers themselves which may well control their future.

Some Drawbacks

Accuracy will be proportionate to scale used. The largest scale now under active consideration is 16 miles to the inch. This means that the map must be changed every 160 miles on the small-scale maps and every 40 miles on the opposite extreme. In the models featuring manual map insertions this presents added work load for the pilot. While the simplicity of reading for pilots in single-place fighters has been sighted, this man is least able to afford such distractions, some industry technicians claim.

One of the more difficult situations facing the pictorial computer is the lack of physical space in the cockpit to accommodate it. Aircraft engineers have been faced with considerable difficulty in recent years in

(*Turn to Page* 36)

TECHNICAL NEWS DIGEST

• **Work has been started at Continental Air Lines** on the first of six Douglas DC-3's being modified for Wisconsin Central Airlines. The $72,000 project includes installation of a step-type door, new navigation and radio equipment, a master baggage door, etc. WCA has been operating seven-passenger Lockheed 10's.

• **Five scheduled airlines are working with the** Military Air Transport Service to train 47 MATS officers in maintenance management and cost control. Participating airlines are Northwest, Capital, Eastern, Pan American and United. Program is spread over a 14-month period. First group of 10 goes to NWA.

• **CAB has revised CAR Part 9 to eliminate the deadline** date on applications for limited airworthiness certificates for surplus military aircraft. No new types of aircraft, not previously granted limited type certificates will benefit but potential users can obtain airworthiness certificates for approved types.

• **A current backlog of $600,000,** mainly for interior appointments for executive Douglas DC-3's has been reported by AiResearch Aviation Service Company at Los Angeles International Airport.

• **The annual Wright Brothers Lecture,** being presented this year by Dr. William Bollay of North American, will be given on the east and west coasts and in Cleveland, Ohio. His lecture on "Aerodynamic Stability and Automatic Control" will be presented December 16 at the U. S. Chamber of Commerce in Washington, D. C.; December 19 in Cleveland at the NACA auditorium of Lewis Flight Propulsion Laboratory and December 22 in the Western Headquarters building of the IAS in Los Angeles.

• **CMA's Douglas DC-6's,** the only standard-size DC-6's equipped with the new Pratt & Whitney R-2800 CB-16 engines, are showing better-than-expected cruise performance. On the 1,647-mile flight from Santa Monica to Mexico City one plane averaged about 360 mph, making the flight in four hours and 31 minutes.

• **A new synthetic armor plate,** lighter than steel, has been designed by Shell Oil Company's research affiliate, Shell Development Co. at Emeryville, Calif. The new armor, designed for fighter pilot protection, is made from petroleum by-products.

• **AOA Fight engineers have asked CAB** to issue a supplemental order prohibiting Pan American from demoting or reducing status or compensation of AOA flight engineers and assistants. AOA engineers, represented by the Flight Engineer International Assn., cited refusal of the PAA chapter of the Flight Engineer Officer Assn. to arbitrate integration of seniority lists and insistence that they be placed at bottom of list.

• **Pan American Airways has adopted a shallow** tray-like tank for fastening under the battery compartment of Douglas DC-4 and DC-6 aircraft while cleaning the battery well. PAA estimated the new system saves from three to five hours in cleaning out the wells.

• **Three Japanese pilots are now at CAA's training center** in Oklahoma City studying air traffic control. The three, employed by the Japanese Aeronautical Aids Agency, will later return to Japan to train their fellow-countrymen in this work.

• **F. W. Davis Engineering Co., Waltham, Mass.,** has patented a new system designed to eliminate pressure loss at high pump speeds in geared, rotary-vane and centrifugal pumps. The major component is venture at the pump inlet which accelerates input flow. There are no moving parts.

• **Harry W. Pierce, New York Shipbuilding Corp. executive,** has been elected president of the American Welding Society. Dr. Wendell F. Hess, Rensselaer Polytechnic Institute, has been awarded the Samuel Wylie Miller Memorial Medal by the AWS for "conspicuous contributions to the advancement of welding and cutting metals."

TOPS

Dependable Martin 4-0-4 Airliners will be economical to operate, offer plenty of passenger appeal to build traffic... plus a design that rates high in future usefulness!

Tops in operating economy! Martin 4-0-4's high revenue capacity, high cruising speed and low maintenance costs will add up to maximum economy for airlines. Its fast ground loading features will cut stopover time. And its basic configuration, originally designed for low-cost maintenance, has been further improved as a result of three years of Martin experience with Northwest Airlines and leading South American lines, and now Trans World Airlines.

Tops in passenger appeal! Martin 4-0-4's will be easier for traffic departments to sell because of *faster* trips, shorter stops and pressurized, air-conditioned, comfortably quiet cabins. And it will be able to serve smaller airports to help expand air travel business.

Tops in dependability! The Martin 4-0-4's efficient wing and flap design will give excellent low-speed flying qualities as well as higher cruising speeds. Built-in aerodynamic stability will permit wide range of passenger and cargo loading.

Tops in future usefulness! The present structural and performance margins of the Martin 4-0-4 permit gross weight, payload and power plant changes to meet future airline requirements. Turbo-prop engines, for example, will give it higher cruising speeds and a longer useful life.

Chosen by TWA and Eastern to modernize their twin-engine fleets, Martin 4-0-4 Airliners will go into service next year. From nose to tail, they are a product of Martin *Systems Engineering*. For whatever the product, Martin's staff integrates its work on *all* phases of a design problem . . . airframe and power plant, electronic flight and navigational controls, and military armament or passenger facilities.

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Extra Section

By William D. Perreault

ON A RECENT airline trip I noticed an emergency flashlight strapped to the forward bulkhead of the cabin. Sitting in the front row of seats, I reached over and removed the light, attempting unsuccessfully to light it. It was an inertia type light, one which lights from impact forces during a crash. It never did light, either by the regular switch or the inertia mechanism. A similar light in the rear of the cabin worked both ways. I wondered how much inoperative emergency equipment is being carried around.

•

An interesting photo passed over my desk last week. It showed six crew members of a Sabena Belgian Airlines plane departing for home after a tour of duty on the Pacific airlift. A caption under it, which was later verified, noted that the crews on the Sabena planes were averaging 175 hours' flying a month. It turns out that this it not normal. They plan on 200 hours per month during their three-month tour of duty and 175 was the best they were able to do recently.

•

During a breakfast session with **Major General Laurence S. Kuter,** the Commander of MATS noted that they are having excellent experience with the P&W R-4360 engine in the Stratofreighters. While military overhaul times for engines often lag behind that of civil operators, MATS has had four sets of R-4360's go a full 800 hours recently. One of these instances represented a plane used full time in training operations. I asked if he could account for this in any logical manner. Kuter felt MATS has a "good book." Their operations manual, which is being followed to the letter, is a composite of those used by commercial operators, contains some procedures from all of them, doesn't agree fully with any of them. Must get a copy of that manual.

•

With the time for all the annual meetings drawing near I've been thinking of the matter of prepared papers I've heard in the past year. They have been some mighty good ones. The few poor ones appeared to have one common characteristic: They were presented by sales engineers who were primarily interested in a sales presentation rather than a contribution to the industry. One engineer, who has repeatedly presented top papers as an engineer, presented the year's low by turning the speaker's microphone into a sales platform. In another case, one of the technical societies reprinted such a paper in full in its official journal although it was an apparent uninformative puff.

•

Three airlines are now experimenting with graphitized lubricants being manufactured by the Miracle Power Division of The AP Parts Corp., Toledo, Ohio. **John J. Nopper,** sales manager for the division and well known in aviation circles, tells us that data collected to date indicates that proper use of these lubricants can extend the service life of aircraft engines from 25-30%. Feeling is that the first few minutes or possibly the first hour of engine life determines engine characteristics and life. During this critical period before normal engine lubrication is adequate the graphitized lubricants protect the moving parts.

•

Can't help thinking that the purchasing agents are really going to have a time of it trying to get spare parts for the airlines in spite of NPA directives and competition with military DO's. At best the purchasing agent has a "hot seat" and this is just going to add coals to the fire.

(*Continued from Page* 33)

finding space for such simple and necessary equipment as the cross-pointer meter of the ILS system—a standard-size instrument fitting into a normal panel cutout. The computer, by its very nature, will demand a prominent space about 12 x 13 inches.

There are many practical application problems facing the pictorial computer. The present development program will smoke out these troubles and serve as a useful proving ground for future applications of display-type instruments in the RTCA program.

AMONG THE SUPPLIERS

Greer Hydraulics, Inc., 454 18th St., Brooklyn, N. Y., has appointed **Astra Aircraft Corp.,** Johannesburg, South Africa, as exclusive Greer representatives in South Africa. Astra will handle sales and service of all Greer aircraft maintenance and test equipment . . . **Fluid Power Inc.,** Cleveland, Ohio, manufacturers of standard and special aircraft oxygen equipment and test units, has appointed **John B. Rudy Co.,** 1113 Airway Drive, Glendale, Calif., exclusive distributor in the states of Washington, Oregon, California, Arizona, Texas and Kansas.

Quiet Cell—This soundproof cell is used by the USAF Aeronautical Medical Laboratory at Wright-Patterson AFB in search of more information on the effect of noise on human beings. In this photo a guinea pig has been placed on a suspended shelf in front of a controllable siren. The siren produces sound levels from 250 to 150,000 cycles per second. Effect of jet engine noises, which sometimes run 140 decibels and above, can reach sound levels (over 160 decibels) which cause mechanical damage to the ear.

CAA to Flight Test C-46 Using T-Category Criteria

The Curtiss C-46 Commando is due for re-evaluation in the light of performance requirements of CAR Part 4b covering transport category aircraft. The C-46 was probably the last U. S. transport aircraft to be certificated outside the T category requirements.

CAA has made the decision to conduct flight tests with the C-46 as soon as suitable arrangements can be made. To carry out the tests CAA issued bid invitations to 12 C-46 operators seeking an aircraft in good condition, pilot personnel and performance of certain maintenance activities while the tests were underway. Depending on weather conditions, projected tests would take four to six weeks.

All twelve operators declined to bid on the project, noting that this was a busy season and existing traffic levels did not permit participation. Airplanes are available from other sources, other operators or the USAF, but CAA has been particularly anxious to get an aircraft which will be as typical of those in wide-spread use by the irregulars as possible. As this is written no final decision had been made on the matter of equipment.

Involved in Accidents

There are other transport aircraft in wide-spread use that do not meet T-category requirements. The Douglas DC-3 and Lockheed Lodestar are in this group. But CAA points out that both of these aircraft have good operating records and that their capacity is relatively low. CAB records show that there were 16 C-46 accidents by U. S. air carriers reported during 1949. This included seven fatal accidents. During 1950 to date, there have been two fatal C-46 accidents out of a total of eight accidents in this type plane.

Present authorized gross weight of the C-46 is 48,000 pounds. The ship's gross weight and large size make unusually high passenger loads possible. Unlike the DC-3, the C-46 often carries as many passengers in irregular coach operations as the four-engine Douglas DC-4 and sometimes more than the DC-6 or Lockheed Constellation. There have been a few spectacular accidents which have brought public pressure for CAA action.

CAA officials comment that they have no preconceived ideas about the airplane. They want to give it operational tests closely simulating actual operations, using regular crews and regular maintenance. Since the current operation, CAA states, is representative of two levels of safety for one type of operation, it will compare the plane's performance with the requirements of T-category rules. If there is wide variation steps will be taken to raise the level of safety.

Daily Plane Utilization
International

		July	Aug.
American	4 eng. pass.	3:55	3:56
AOA	2 eng. pass.	1:49	1:52
	4 eng. pass.	5:34	5:21
Braniff	4 eng. pass.	7:31	7:46
C & S	2 eng. pass.	8:13	7:53
	4 eng. pass.	9:20	9:39
Colonial	4 eng. pass.	6:51	6:54
EAL	4 eng. pass.	9:35	9:31
NAL	4 eng. pass.	8:18	7:02
	cargo	....	1:18
NWA	4 eng. pass.	10:45	9:57
	cargo	5:26	8:29
Panagra	2 eng. pass.	3:25	3:29
	4 eng. pass.	5:31	5:44
PAA			
Lat. Am.	2 eng. pass.	3:23	3:53
	4 eng. pass.	6:54	6:54
	cargo	3:31	3:22
Atlantic	4 eng. pass.	6:13	6:08
	cargo	:33	:10
Pacific	4 eng. pass.	6:52	7:06
Alaska	4 eng. pass.	8:26	9:27
	cargo	6:35	7:06
TWA	4 eng. pass.	8:38	9:03
	cargo	7:14	7:18
UAL	4 eng. pass.	3:31	3:03

Feederlines

		July	Aug.
All American	DC-3	6:53	6:46
Bonanza	DC-3	4:26	4:34
Central	Beech A-35	3:11	3:12
Empire	DC-3	4:42	5:01
Frontier	DC-3	6:34	7:01
Mid-West	Cessna 190	4:31	4:15
Piedmont	DC-3	8:04	7:56
Pioneer	DC-3	6:48	6:54
Robinson	DC-3	4:41	4:51
Southern	DC-3	6:29	6:32
Southwest	DC-3	5:14	5:08
Trans-Texas	DC-3	6:09	5:59
Turner	DC-3	3:25	4:09
	Beech Bonanza	2:47	2:53
West Coast	DC-3	4:40	4:37
Wiggins	Cessna T-50	3:00	3:24
Wis. Central	Lockheed 10A	7:26	7:33

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TRADE MARK

NEW PRODUCTS

Blind Flying Shield

An instrument flight training shield, constructed of blue plastic, is being marketed by Van Dusen Aircraft Supplies. The shield attaches to a simple head frame. The design makes it easy for the pilot to see the instrument panel and controls but prevents seeing outside the aircraft. At the same time the shield does not interfere with the check pilot's vision and consequently adds to the safety of training. In an emergency the pilot need only flip up the shield to be back on contact flight immediately. Does not interfere with pilot's use of the microphone.

When contacting **Van Dusen Aircraft Supplies**, 2004 Lyndale Ave., S., Minneapolis, Minn., please mention AMERICAN AVIATION.

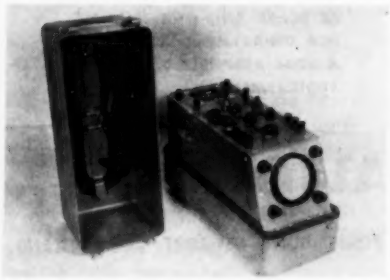
Beacon Antenna

A high-gain beacon antenna, designed for aeronautical ground communications, has been announced by The Workshop Associates. The Model 2HW has a gain of approximately three decibels, the manufacturer claims, and has an omnidirectional radiation pattern. Each antenna is matched to the operating frequency by a low standing wave ratio. Features single unit construction and built-in lighting protection. Suitable for local airports, control tower and ground aircraft, airline offices and similar applications. A specially designed side lobe enables communication with aircraft while aloft. Full specifications plus studies of applications available.

When writing **Workshop Associates, Inc.**, 135 Crescent Road, Needham, Mass., please mention AMERICAN AVIATION.

Oscilloscope

A miniaturized portable oscilloscope for testing high-frequency equipment and providing pulse-type wave forms is being supplied to the USAF and Navy by Hycon Mfg. Co. The new unit has



a sweep frequency range from 3 cycles to beyond 50,000 cycles per second. Vertical amplifier response is flat within three decibels from direct current to two megacycles, while horizontal response is flat within two decibels from direct current to 100 kilocycles. It incorporates direct-coupled amplifiers, reproduces wave forms with 3-microsecond rise times and 100-kilocycle square waves. Circuit design, the manufacturer claims, maintains a sweep return time ratio of not less than 5-1 at all frequencies. Deflection sensitivity exceeds 0.5 volts per inch at all line voltages from 105 volts to 125 volts and at all line frequencies from 50 cycles to 1,000 cycles.

When writing the **Hycon Mfg. Co.**, 2961 E. Colorado St., Pasadena 8, Calif., please mention AMERICAN AVIATION.

B Nut Wrench

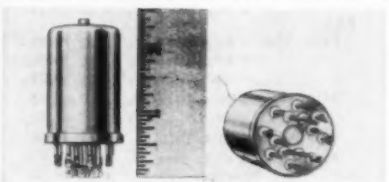
Two new flare (B) nut wrenches for nuts up to 1⅛ inches have been introduced by Owantonna Tool Co. Drop-

forged from alloy steel, the new wrenches are made with hex openings for optimum grip. The number CS-2428 double end wrench provides for ¾ and ⅞-inch nuts and the No. CS-3236 for 1 inch and 1⅛ inches.

When writing the **Owantonna Tool Co.**, 403 N. Cedar St., Owantonna, Minn., please mention AMERICAN AVIATION.

Sealed Relay

A new hermetically sealed miniature relay for aircraft applications has been designed by Hart Mfg. Co. The new "Diamond H" 4-pole double-throw relay, built to withstand shocks up to 50G, displaces only 1.5 cubic inches, weighs only 3.5 ounces. It is sealed with dry, inert gas, pressure-filled and built to operate in temperatures from 65° F. to +200. Available in wide variety of voltages, amperage, number of poles and tem-



peratures. Contact ratings are 2A, 28V, DC; 2A, 115V, AC, 400 cycle. Overload rating is 12A, 28V., 20 seconds, coil resistance 300 and 150 ohms; coil voltage 28V, DC, with .1 amperage.

When writing **The Hart Mfg. Co.**, Hartford, Conn., please mention AMERICAN AVIATION.

Blind Fasteners

New-style one-sided fasteners supplied in aluminum or steel have been introduced by Rocket Distributors, Inc. Supplied in 1/8", 5/32", 3/16" and ¼" sizes, in a wide variety of grip ranges, the new fasteners, the manufacturer claims, have design characteristics which preclude splitting the upset head. Coding system used to indicate style and alloy of rivet. Meeting all Army, Navy and Underwriter's Laboratory specifications. Complete literature and engineering data sent free.

When writing **Rocket Distributors, Inc.**, 209-14 41st Ave., Bayside, L. I., N. Y., please mention AMERICAN AVIATION.

Model 44 Shaker

A newly introduced Calidyne shaker provides up to 50-G acceleration with mass loads of ¾ pound or less. Testing of critical equipment to USAF specifications of 20'sG can be met with inertia loads up to 14 pounds. A companion piece of equipment, the Model 45 power supply provides 2-500 cps frequency range: 2-125 cps and 100 to 500 cps alternators, 1.5 kva at any frequency over 60 cps, proportional to frequency below 60 cps. The power supply is matched to the shaker for attainment of full shaker rating, continuous duty.

The combined units are guaranteed to equal or exceed the following limits: With no load on armature: 54.5-G acceleration (vector) or .25-inch displacement (vector) over frequency range 3-500 cps with 14-pound inertia load on armature: 20-G acceleration (vector) or .25-inch displacement (vector) over the frequency range 3 to 500 cps. The G acceleration at any inertial table load is guaranteed to be equal to or greater than $\frac{450}{8.25 + \text{(table load)}}$ at any frequency over 20 cps where this vector acceleration is proluced at a vector displacement of less than .25 inches.

When writing **The Calidyne Co.**, 751 Main St., Winchester, Mass., please mention AMERICAN AVIATION.

Panel Vibrator

A compact instrument panel vibrator, designed to overcome instrument lags resulting from non-vibrating instrument panels on turbine-powered aircraft, has been introduced by Safe Flight Instrument Corp. The unit is a hermetically sealed container weighing 11 ounces and measuring 4½ inches long, 1½ inches square. A small electric motor, operat-

ing on 27 volts is used to turn an eccentric weight at frequencies from 2,000 to 3,000 rpm. Maximum continuous current drain is .04 amperes. Mounting is provided for via four bolts. Filtered to prevent radio noise.

When writing the **Safe Flight Instrument Corp.**, White Plains, N. Y., please mention AMERICAN AVIATION.

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CAB Weighs Trans-Atlantic Coach Policy

By William V. Henzey

THE QUESTION of how several million dollars worth of tourist-type traffic to Europe should be handled next summer is getting a top priority within the Civil Aeronautics Board, and equally high consideration among certificated trans-Atlantic air carriers, non-scheduled airlines, and travel agents.

Last summer approximately 6,000 air passengers, made up of students and members of so-called "common purpose" groups were transported to Europe and back by carriers other than scheduled trans-Atlantic lines.

Next year, unless world conditions dictate otherwise, the move will be repeated, but by whom and to what extent are questions which only CAB can answer finally. And the Board proposes to do so with a soon-to-be-issued policy statement.

Want Non-Skeds Excluded

Pan American World Airways and the American Society of Travel Agents want CAB to permit the scheduled lines to carry next year's traffic at special tourist rates and exclude non-scheduled lines and those not holding trans-Atlantic certificates from participation.

PAA claims that more than one level of service in air transportation is inevitable and told CAB it has already permitted the operation of trans-Atlantic coach service in everything but name. In Atlantic services, PAA said, the question is not whether tourist services should be authorized but when and how much.

ASTA, representing some 725 travel agents, thinks that in addition to existing high-standard transportation, CAB should authorize low-rate operations during the peak season. But, it was pointed out, only the certificated lines should provide it.

Trans World Airlines, however, while agreeing that non-scheduled carriers should be kept out of next year's picture, do not concur in the PAA and ASTA proposals for scheduled tourist services. TWA said it prefers promotional fares such as special round-trips as an inducement to build up loads in both directions within specified periods.

Inconsistent Loads

Scheduled trans-Atlantic carriers have been faced with an acute problem of seasonal unbalance and TWA feels added capacity, in whatever form, will only aggravate the problem. The following table illustrates the inconsistency of TWA's eastbound load factors compared to westbound during the so-called "peak months" in 1950:

	Passenger Load Factor	
	Eastbound	Westbound
	%	%
June	80.6	45.6
July	68.3	58.2
August	33.6	88.7
September ..	46.0	94.2

In June and July, according to TWA's statements, its capacity was 4,338 seats in excess of passengers actually carried in trans-Atlantic operations and, the line says, scheduled carriers were in a position to handle all of the traffic booked by the exempted carriers.

The proposals were submitted as possible solutions for the coming year and followed an extensive re-examination of the 1950 program conducted by CAB Air Transport Examiner L. Orville Cameron. But they were not alone submitted by trans-Atlantic carriers and sympathizers.

Flying Tiger, which participated under the exemption program this year, believes CAB should authorize it to carry any group-type traffic that the scheduled trans-Atlantic lines are free to transport. And, Flying Tiger says, it should be permitted to have direct dealings with its passengers.

This year, Flying Tiger, Seaboard & Western, and Transocean were specified as the carriers to transport groups arranged by Youth Argosy, Inc. But the carriers were not free to solicit or develop their own business.

Transocean, like Flying Tiger, urged CAB to adopt provisions which would permit it to deal directly with its passengers and asked that it be authorized to carry any groups having a common purpose. In 1950, groups were supposed to be "bona fide religious, educational, or charitable" in character.

Capacity Conscious

Youth Argosy, referred to as a "non-profit" organization, does not want its 1951 passengers confined necessarily to non-scheduled or exempted lines. Primarily, it is interested in available capacity and it urged CAB

Salesmen on Tour—Two hundred sales representatives of United Air Lines were taken on a recent tour of every department of UAL's 116-acre centralized maintenance base at San Francisco. Group shown here is listening to a guide explain cylinder assemblies. Salesmen were divided into groups, according to customer fields in which they specialize. Purpose of tour was to familiarize them with maintenance methods which play a major role in company's greatly increased winter schedule regularity.

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to turn student and group travel rights over to non-profit organizations exclusively. It has been well established, Argosy said, that activities of non-profit concerns are in the public interest.

How CAB will resolve the problem is not known, but a recent public statement by Chairman D. W. Rentzel is significant. He said: "Internationally . . . the need for coach services is not as apparent or pronounced as it appears to be within the United States. However, we are aware that there is a large group of people interested in low-cost seasonal travel such as college students in the summer months, and if the demand for such travel reaches large enough proportions the Board would not be adverse to finding out if air coach fares to Europe . . . would prove economically practical for our air carriers. However, I think this demand for international air coach service at lower-fare rates may not occur for some time because of present conditions."

CAB CALENDAR

Dec. 11—(Docket 4683 et al.) Hearing in National Airlines Daylight Coach Fare Investigation. Tentative. Examiner R. Vernon Radcliffe.

Dec. 11—(Docket 3605 et al.) Hearing in Lehman Brothers Interlocking Relationship Case. 10 a. m., Conference Room "A," Departmental Auditorium, Washington. Examiner Herbert K. Bryan.

Dec. 11—(Docket 4211) Oral argument before the Board in American Airlines Los Angeles-San Francisco Cargo Case. 10 a. m., Room 5042, Commerce Bldg., Washington.

Dec. 12—(Docket 4579) Prehearing conference on Samoan Airlines' application for Pago Pago-Apia certificate. 10 a. m., Room 5040, Commerce Bldg., Washington. Examiner Richard A. Walsh.

Dec. 14—(Docket 3720) Oral argument before the Board in Trans-Texas Airways Certificate Renewal Case. 10 a. m., Room 5042, Commerce Building, Washington, D. C. Postponed from December 5.

Dec. 14—(Docket 2949) Hearing on application of Mid-Continent Airlines to add Lincoln, Neb., between Omaha & St. Joseph. 10 a. m., Room 1011, Temp. Bldg. 5, Washington, D. C. Examiner Curtis C. Henderson.

Dec. 15—(Docket 3950) Prehearing conference in Associated Airways Section 291.16 Exemption Case. 10 a. m., Room 5040, Commerce Bldg., Washington. Examiner Walter W. Bryan.

Jan. 3—(Docket 3908) Hearing in American Air Transport Sec. 291 Individual Exemption Case. Tentative. Examiner R. Vernon Radcliffe.

Jan. 8—(Docket 3758 et al.) Hearing in Additional Service to State of Kansas Case. Tentative. Examiner James S. Keith. Postponed from November 20.

Jan. 8—(Docket 2849 et al.) Hearing in Big Four Mail Rate Case. Tentative.

Dec. 8—(Docket 4586) Hearing in West Coast Common Fares Case. 10 a. m., Room E-124, Temp. Bldg. 5, Washington, D. C. Examiner F. Merritt Ruhlen. Postponed from December 11.

Jan. 16—(Docket 3153) Hearing on Chicago and Southern Air Lines' application for service to Maracaibo, Venezuela. Tentative. Examiner Curtis C. Henderson.

U. S. Airlines Ending Record Traffic Year

By Preble Staver

Revenue passenger miles flown by the domestic trunk airlines in the first 10 months of this year nearly equaled the total miles flown for the entire year of 1949, according to an Air Transport Assn. compilation.

The ATA figures revealed that the 15 trunk carriers operated 6,563,846,000 revenue passenger miles (charter traffic excluded) in the 10 months ended October 31, 1950, compared with 6,582,294,000 operated in the entire 12 months of 1949. Thus the year-end total might be a record 7.8 billion passenger miles, which would be an 18% increase over last year's traffic.

For the nine months ending September 30, 1950, increases in revenue passenger miles and cargo ton-miles of 11.7% and 18.7%, respectively, over the comparable period a year ago were registered by the U. S. international, domestic trunk, and local service airlines combined.

Domestic Trunklines

Western Air Lines and National Airlines were the two leaders in per cent of increase in revenue passenger miles and cargo ton-miles of the domestic trunklines this year. Western flew 163,691,000 passenger miles January through September this year, up 48.9% over last year, followed by National with an increase of 45.9%.

Biggest gainer in cargo ton-miles flown was National, up 98.4% or 1,143,717 miles more than it flew the year before, with Western next with an increase of 69.5%. Total revenue passenger miles flown by the domestic trunklines in the nine months ending September, 1950, was 5,782,222,000 and the total of cargo ton-miles flown was 105,526,920.

Local Service Airlines

The local service airlines flew 139,750,000 revenue passenger miles and 915,706 cargo ton-miles for the period, increases of 39.7% and 82.4% respectively. Big gainer was All American Airways, which showed an 141.3% gain in passenger miles and an 111.5% gain in cargo ton-miles.

Wisconsin Central Airlines was second according to per cent of increase in passenger miles and third in cargo ton-miles.

International

The U. S. international airlines followed the upward trend in passenger revenue miles showing an increase of 7.3%. Cargo ton-miles were up 9.4%, although the individual line's percentage changes in cargo miles flown ranged widely. A number of the carriers which show reductions in cargo miles have not included traffic figures for military charter operations while United Air Lines, which showed an increase of 1176.3% in international cargo ton-miles, has included such figures.

U. S. Airline Traffic

First Nine Months, 1950

Domestic Trunklines

Rank	Revenue Passenger Miles (000 Omitted) 1950	1949	% Change	Rank	Cargo Ton-miles‡ 1950	1949	% Change
1. Western*	163,691	109,894	48.9	2.	1,082,364	656,095	69.5
2. National	185,627	127,173	45.9	1.	2,416,565	1,272,848	98.4
3 Delta	209,648	159,971	31.0	3.	2,875,975	1,804,951	59.3
4 Northwest	402,913	311,248	29.4	5.	6,677,634	4,392,507	52.0
5. Eastern	916,695	763,326	20.0	12.	10,509,399	8,872,067	18.4
6. Capital	308,433	271,996	13.3	9.	8,023,456	6,333,852	26.8
7. TWA	814,566	724,677	12.4	14.	13,482,486	11,942,985	12.8
8. American	1,263,839	1,145,455	10.3	13.	29,297,699	25,937,336	12.9
9. Northeast	53,590	49,147	9.0	6.	341,023	231,602	47.0
10. United	1,052,202	987,103	6.5	11.	26,471,629	21,361,867	23.9
11. Continental	53,682	50,457	6.3	10.	430,571	340,108	26.5
12. Braniff	158,980	149,806	6.1	4.	2,106,052	1,366,078	54.1
13. C&S	84,351	81,273	3.7	8.	1,126,364	826,888	36.2
14. Mid-Continent	76,821	76,016	1.0	7.	549,412	398,701	37.7
15. Colonial	37,184	39,458	— 5.7	15.	136,291	128,275	6.2
Totals	5,782,222	5,047,000	14.5		105,526,920	85,866,160	22.7

Local Service Airlines

1. All American[1]	16,478	6,827	141.3	5.	80,502	38,054	111.5
2. Wis. Central	5,761	3,658	57.4	3.	34,288	14,818	138.1
3. Robinson	6,321	4,571	38.2	1.	52,626	11,737	348.3
4. Piedmont	18,543	13,475	37.3	4.	151,718	68,231	122.3
5. Trans-Texas	10,060	8,128	23.7	2.	64,149	26,653	140.2
6. Pioneer	25,939	21,299	21.7	7.	140,438	71,590	96.1
7. Empire	6,473	5,632	14.9	9.	13,209	10,394	27.0
8. West Coast	7,757	7,217	7.4	6.	19,512	9,551	104.2
9. Southwest	17,002	16,548	2.7	8.	135,090	91,520	47.6
10. Frontier[2]	12,840	12,615	1.8	10.	162,299	159,324	1.8
Southern[3]	4,125	.....	....		29,254	.....	....
Bonanza[4]	3,550	.....	....		8,521	.....	....
Lake-Cent.[5]	3,070	.....	....		16,100	.....	....
Central[6]	841	.....	....		8,000	.....	....
Mid-West[7]	782	.....	....		.....	.....	....
Wiggins[8]	208	.....	....		.....	.....	....
Totals	139,750	99,970	39.7		915,706	501,872	82.4

International

1. National	21,518	13,027	65.1	12.	190,464	300,021	—36.5
2. Colonial	13,763	8,363	64.5	7.	42,930	45,263	— 5.0
3. Eastern	19,188	12,418	54.5	11.	253,346	358,580	—34.2
4. Braniff	30,073	20,443	47.1	2.	663,218	152,265	335.5
5. Northwest	78,313	57,760	35.5	4.	4,222,957	3,332,327	26.7
6. United	71,862	53,044	35.4	1.	2,509,166†	212,266	1176.3
7. TWA	266,027	225,691	17.8	9.	4,169,169	4,630,320	— 9.9
8. AOA[9]	162,167	141,384	14.7	10.	2,145,160	2,860,941	—25.0
9. American	51,951	50,532	2.8	5.	1,012,301	885,433	14.3
10. C&S	21,344	20,903	2.1	3.	482,102	215,387	123.8
11. PAA	942,967	931,637	1.2	6.	29,355,622	27,943,463	5.0
12. Panagra	76,599	79,649	— 3.8	8.	1,294,203	1,407,818	— 8.0
Totals	1,734,989	1,614,851	7.3		46,340,638	42,344,084	9.4

‡ Includes express and freight ton-miles.
* Includes subsidiary Inland Airlines.
† Includes military charter operations.
[1] Began passenger operations March 7, 1949.
[2] Formerly Challenger Airlines and Monarch Air Lines, merged June, 1950.
[3] Began operations June 10, 1949.
[4] Began operations December 19, 1949.
[5] Formerly Turner Airlines, began operations November 12, 1949.
[6] Began operations September 15, 1949.
[7] Began operations October 21, 1949.
[8] Began operations September 19, 1949.
[9] Figures not available for September, 1950, estimated total.

How One Feeder Airline Solves the Meal Problem

The economics of local service airline operations do not permit the furnishing of free meals or snacks, yet many passengers fly for several hours and have to pass a customary meal time in the air.

Frontier Airlines has come up with an idea which may point the way for other local service carriers to cope with this particular situation. Frontier's solution is in the form of a suggestion handed to each passenger who is likely to be in the air at meal time.

It's a small printed folder with a map of Frontier's system on the back cover and the suggestion "Order Your Sky Snack Now! You might Get Hungry En Route" on the front cover. The message on the inside fold reads thus:

"Inasmuch as Frontier Airlines does not provide complimentary 'in-flight' meal service, the length and schedule of your flight will probably find you getting hungry en route. Accordingly, arrangements have been made to have a Sky Snack placed aboard your flight for you if you wish this service.

'Sky Snack'

"The Sky Snack includes sandwiches, fruit, relishes, cookies, etc., which will be served to you by the stewardess in addition to hot beverages which are carried aboard the aircraft. This service is tendered as an accommodation to add to your comfort and is entirely optional with you.

"The reason for this arrangement is that Frontier Airlines, as a local service airline, is intended to provide essentially safe, comfortable and fast scheduled air transport service over routes that are part of the nation's secondary air network, without the frills that are generally provided as a part of the trunk airline services.

"Accordingly, both government and company policy, as well as limitations upon food service equipment of the aircraft, results in the arrangement for provision of the Sky Snack at the customer's expense. Although we must ask you, our valued customer, to assume the cost of Sky Snack service, we do earnestly suggest that you take advantage of it to add to the comfort of your journey.

"In order that you may be properly served under this plan, it is necessary that you inform the passenger agent *now* of your desire to have a Sky Snack put aboard your flight at an en route point. The agent will provide you with a coupon for a Sky Snack which will be lifted by the stewardess at the time the Sky Snack is delivered to you in the course of your trip.

"Your cooperation is very much appreciated."

Charge for the Sky Snack, which is packed in a paper box, is 75 cents. Frontier says its passengers like the service.

33 Cities and 16 years...

Thirty-three *important* cities — from New York to Miami...from New Orleans to Havana, Cuba — lie along the route served by National Airlines, the Airline of the Stars.

In its 16 years of operation, National Airlines has become *known* for fine equipment, fast flying time, passenger comfort, and courteous service. *All* of these are provided to the *highest degree* in National's famed STAR flights — DC-6 Luxury PLUS!

Airline of the Stars

NATIONAL ☆ Airlines

LAA Passenger Bid Aired Before CAB

The nation's oldest certificated helicopter line, Los Angeles Airways, has made a strong bid to CAB for authority to transport passengers in and around Los Angeles.

At hearings recently completed in Washington, LAA not only made a favorable showing on its own behalf, but did much to advance the helicopter as a vital answer to the short-haul problem confronting the air transport industry.

LAA was first granted a certificate to carry mail and property in 1947. Its original three-year license ran out in October of this year but because it has an application for renewal on file may continue operations at least until CAB rules on it. Significantly, however, the matter of renewal at recent hearings seemed a foregone conclusion and most of the major developments centered around the passenger proposal.

Two top-flight helicopter experts, Igor Sikorski and Frank N. Piasecki, made the point that the transport helicopter is ready for commercial service and the benefits should be made available to every metropolitan area. Sikorsky emphasized that certification of passenger helicopter services should not be delayed until twin-engined ships are available.

Revolutionary Step

Through oral testimony of its president, Clarence M. Belinn, and through written exhibits, the helicopter line laid the groundwork for what prom-

ises to be another revolutionary step in the development of the domestic air route pattern.

LAA has now placed an order for one Sikorsky S-55, 10-place commercial model of the Air Force's H-19, with an option to buy at least one additional. Delivery has been promised for next spring.

LAA's Proposal

In its own specific area, the carrier proposes to operate commuter services from outlying districts to downtown Los Angeles and to the airport. However, other sources of potential passenger revenue may be found in (a) scheduled feeder connections with trunk lines, (b) sightseeing flights, (c) charter flights, and (d) intercity flights. In other words, it would, upon proper certification by CAB and receipt of transport-type helicopters, become an intra-area carrier.

Such type carriers have been described as the "missing links" in today's air transportation picture because there is seemingly adequate air service available to the public for transcontinental and trans-oceanic trips and for area to area trips, but the benefits of air travel dissolve when most airports are reached because of the comparatively long distances to and from downtown sites.

Thus, LAA envisions the domestic airline system as falling into two distinct groups, complementing each other, yet affording sufficient competition to keep each on its toes. One group would be the present trunk carriers broken down into transcontinental and regional. The other would be "local service" or "feeder lines," broken down into inter-area-lineal and area-radial, with present-day feeders in the first group and helicopter operators in the latter.

Area-Radial Carriers

The local service lines, LAA says, can be expected to play a major role in serving the great number of small cities located lineally between large trade centers while the helicopter or area-radial carriers would operate on a "within" basis.

Perhaps the greatest untapped traffic potential for the airlines lies in the 1-99 mile bracket which would be served by the helicopter lines. Development of such a potential would take time and constant improvements in equipment. But the market is there and, LAA argues, the rotary-winged planes can develop it.

Belinn testified that the helicopter closes a gap by uniting the millions who live radially within a hundred miles or so of our highly developed financial and industrial hubs.

Over the Counter

Sales Promotion

THREE TWA promotion ideas deserve special mention. First is a smartly-done booklet, entitled "Connie Has Style," explaining the restyling changes that have been made in the Connie fleet. Attached to the cover is a note giving the other Connie users a pat on the back—"new friends have put new Connies on north-south flights . . . **Chicago and Southern, Eastern** and **Capital.** Thus, you can get through Connie service between almost all major U. S. cities." Second is an ad which has appeared in several metropolitan newspapers, devoted entirely to the travel agent ("the man to see for *all* the answers is your friendly travel agent"). Third are the newspaper and radio ads locally "tailored" for 25 cities in TWA's major campaign announcing new Connie and Martin service. Campaign explained changes in local service in each of the cities resulting from addition of new equipment. Local managers said it was very effective.

Douglas Aircraft Co. is keeping the name of its equipment before the public, helping the DC-6 users. Company has entered the television advertising field with a contract for eight weeks of station-break ads plugging the DC-6 (11 p.m. Saturday nights, CBS-TV). J. Walter Thompson is the ad agency. Douglas has also illuminated its new sign atop the El Segundo plant, making it especially effective at night. On the south side of Los Angeles International Airport, "Fly Douglas" hits airline passengers right in the eyes.

Utilizing a new color film ("Destination—Sun Country"), attractive favors from Southern California and Nevada resorts, and special recreation-area folder packets, **Western Air Lines** has launched a three-months' promotional campaign in northern cities on the line. **Bill McLaucklan,** WAL's Palm Springs traffic representative, makes the presentation before civic organizations, fraternal groups, etc. . . . Flight methods and electronic equipment that aid airline dependability are graphically explained in a new slidefilm and booklet, "Modern Flight," prepared for junior and senior high school students by **United Air Lines.**

Attractively-illustrated **Pan American World Airways'** folder describes the company's guest houses along the South American route . . . **Northwest Airlines** selling Hawaii with a new multi-color folder . . . Second ad in **Capital's** national campaign stresses company's 23 years of experience. It features picture of a stewardess, with title "23 years old—and what popularity!" . . . Out after interline business, **All American Airways** printed insignia of nine connecting airlines on cover of timetable. AAA's interline business, incidentally, has grown to about 45% of total . . . **Pioneer Air Lines** is promoting sports travel with an all-expense ski trip to Santa Fe, N. M., for ski enthusiasts from Texas. For example, price for a complete weekend in Santa Fe, including all taxes and expenses, is $90.70 from Dallas.

Traffic and Services

POST Office Dept. has designated all domestic airline schedules and extra sections for carriage of mail during December, to speed handling of air mail during Christmas season. This is expected to be an improvement over the system followed in past years, when carriers waited until there was a backlog of mail before wiring the PO for permission to use a certain trip.

Colonial Airlines inaugurated one-stop service on Nov. 28 between Washington and Ottawa, Canada, via Syracuse, N. Y., reducing flying time between the two capitals by one hour 25 minutes . . . **National Airlines** expects by Jan. 12 to have boosted New York-Miami "Star" flights by 200%, increased New York-Havana service from two to four flights daily, and scheduled three additional southbound flights out of Washington.

Twice-weekly service between Miami and San Jose, Costa Rica, has been inaugurated by **Lineas Aereas Costarricenses (LACSA),** Pan American World Airways' Costa Rican affiliate. Company is using 50-passenger C-46's . . . **Lineas Aereas Nacionales S. A. (LANSA),** Colombian national airline, has opened twice-weekly DC-4 service between Bogota and Havana via Barranquilla. Company has entered into interline agreements with **Braniff, Chicago and Southern** and **National** at Havana . . .

Mid-Continent Airlines on Dec. 1 added a third daily round-trip between Chicago and Waterloo, Ia., via Rockford and Dubuque.

Pan American World Airways has had its Approved Service Plan amended by CAB to authorize direct transportation between all PAA points in Germany. No new points are added to PAA's routes, but amendment eliminates restrictions which have prohibited service between points in Germany located on separate segments.

Airline Commentary

By Eric Bramley

AN ITEM that should be passed on to map-makers, international airport authorities, and others, was revealed the other day by **Maj. Gen. L. S. Kuter,** commander of Military Air Transport Service. It will also be of interest to many of the airline people who traveled eastward during the war. Remember that airport in the Azores where you used to land on trips to Africa, India, China, etc.? You called it Lagens (attention **Al Towne,** now United Air Lines' Des Moines traffic and sales manager, who was ATC's priorities and traffic officer at Lagens, and the first person we met when we got off the plane). However, when Larry Kuter went on a round-the-world inspection trip a few weeks ago, he made a startling discovery. All the maps are wrong. The correct name of the field is Lages—there never has been and never will be an "n" in it. Please note for future use.

•

There's an old saying that the two most dangerous parts of an airline trip are the ride to the airport and the ride into the city. Cheers to Western Air Lines for capitalizing on this statement. WAL stewardesses are now announcing to passengers about to reach their destinations: "Please drive carefully, or ask your driver to be careful, when you leave the airport."

•

Ralph Cohen, public relations officer of International Air Transport Association in Montreal, says he read with interest our recent column story about passenger dilly-dallying as a major cause of late airline departures. "There is another side to the story and it is one I can tell from first-hand experience," Ralph states. "It involves an on-time departure and two passengers left behind because (a) the airline involved has its departure approximately one-half mile away from the men's room in LaGuardia Field and (b) because the public address system does not extend into that particular room. So it isn't always the passengers' fault." Note to LaGuardia Field officials: loudspeakers in men's rooms are extremely valuable gadgets.

•

Charlie Dolson, vice president-operations of Delta Air Lines, tells us he is advised unofficially that when a large automobile manufacturing company bought a twin-engined transport plane recently, the check in payment (over half-a-million bucks) carried the following notation down in the lower lefthand corner: "Source of funds—Petty Cash." Oh well, you gotta have some dough available for stamps and things, ya know.

•

American Airlines has given an Award of Merit to a friend of ours for an idea that was worth over $45 million to AA last year (yes, we said $45 million). He's **Charlie Speers,** AA's assistant vice president and general sales manager, who in 1934 came up with the idea of the Air Travel Plan. He was nominated for the award by **Andrew Newcombe,** eastern regional director of sales, who described ATP as "the most successful single sales tool yet developed in air transportation."

AA said investigation confirmed Speers as the originator, and that this was further confirmed by **Charlie Rheinstrom,** then AA's vice president-sales (now with J. Walter Thompson advertising agency). AA added that the value of ATP to the company last year was $45,695,545. In case you're wondering why an award is given now for something done in 1934, AA just passed a new rule that from now on no one can be honored for an accomplishment more than three years old. So this was the last opportunity. Anyway, congratulations to Charlie Speers for a great idea.

•

When top officials of Western Air Lines made a system tour recently, the Singing Tribe of Wahoo, Rapid City, Mont., which emulates the Indian tribes of that area, took two new chiefs into their tribe. One was six-foot, hefty T. C. Drinkwater, WAL president, who was dubbed "Chief Walking Mountain," and the other was Tom Murphy, WAL's director of governmental affairs, who was named "Chief Heap Big Smoke, No Fire."

AIRLINE PEOPLE

—ADMINISTRATIVE—

James Stewart, the cinema, stage and radio actor, has been elected to the board of directors of Central Airlines. Stewart enlisted in the Air Force in World War II, commanded a bomber outfit and rose to the rank of colonel.

Robert J. Smith, Jr., assistant superintendent of stations for Pioneer Air Lines the past 18 months, has been promoted to assistant to the treasurer. He joined the company in 1947 after service as a navy pilot.

Col. A. D. Tuttle, medical director of United Air Lines, has been named to a two-year term on the newly organized medical committee of the International Air Transport Association.

—OPERATIONS-MAINTENANCE—

M. C. Lund, formerly assistant station manager for Northwest Airlines in Chicago, has been promoted to station manager there. He joined NWA as a loading supervisor in 1942.

J. W. Womack has been promoted from station manager for Pioneer Air Lines at Dallas to assistant to the superintendent of stations. **John A. Russell,** station manager at Austin for the past year, moved into the Dallas job.

A. E. (Swede) Johnson has been named manager of Pioneer Air Lines' station at Tucumcari, replacing **E. K. Henderson,** who was transferred to managership of the Waco station. Johnson was formerly assistant station manager at Albuquerque.

Byron Jackson, formerly assistant station manager for Trans World Airlines at Kansas City, is new district operations manager at Frankfurt, Germany. **John Davidson,** Madrid district operations manager, had been temporarily managing the Frankfurt station. Jackson's former post at Kansas City went to **Ed Zavrel,** formerly assistant station manager at Chicago, while **R. I. (Pete) Purcell,** formerly assistant station manager at Amarillo, replaced Zavrel at Chicago.

Robert B. Wilson, formerly supervisor of maintenance planning for American Airlines, has resigned to join Wallace Clark and Company, management consultants.

Raymond J. Evans, former senior operations manager for Capital Airlines at Richmond, has been promoted to district operations manager at Greensboro. He replaces **M. P. Foster,** who reentered the Army Ground Forces.

Roy Haworth has been promoted from assistant station manager for The Flying Tiger Line at Los Angeles to station manager at San Francisco, replacing **M. L. Carnes,** resigned.

Leon P. O'Connor, former general manager of overseas construction for Pan American World Airways, has been elected a vice president and general

manager of foreign operations for the Thompson-Starrett Co., Inc., New York construction firm.

Robert Walquist, former chief of station ground service for United Air Lines at Cleveland, has been named station manager at Bradford, Pa., replacing **R. V. Shrader,** who returns to Moline as station manager.

TRAFFIC & SALES

Robert E. McKenna has been promoted from district sales manager for Western Air Lines at Billings, Montana, to regional sales manager for Colorado, Montana, Wyoming, Nebraska and South Dakota, with headquarters in Denver. **Edward P. Whitney,** formerly district sales manager at Casper, Wyo., has been advanced to interline and agency manager in Denver.

Gilbert W. Paul, former manager of interline relations for Capital Airlines, has joined National Airlines as district sales manager at Washington, where he replaces **Parke Wright III,** promoted to district sales manager in New York.

James R. Eighmey, who was district sales manager for American Overseas Airlines from 1945 until recently, is now an American Airlines sales representative in Houston.

Brooke B. Burnham, district sales manager for Continental Air Lines in Denver for the past eight years, and **Robert M. Evans,** district sales manager for Braniff Airways in Denver for the past five years, have been appointed assistants to the vice president for traffic and sales of Frontier Airlines.

Howard J. Fellows, formerly in United Air Lines' Los Angeles sales office, is manager of the company's new offline sales office in Dallas.

Asher Lane has been promoted from assistant Dallas sales manager to Birmingham sales manager for Delta Air Lines, replacing **Morley Alexander,** who was called to active duty with the Alabama Air National Guard.

Frank Kirchberg, formerly district manager of passenger sales for American Airlines in Chicago, has been transferred to Los Angeles in the same capacity. He has been with American since 1937.

Arthur L. Stewart has been named general sales manager for Trans World Airlines newly established Pacific-Orient Region, with headquarters in Los Angeles. He has been with TWA 11 years and served as vice president and adviser to Philippine Airlines on loan from TWA after the war.

Charles J. Croker has joined All American Airways as district sales representative in the Washington-Baltimore area.

Thad M. Dyer has been promoted from sales representative with Braniff Airways at Fort Worth to traffic manager at Corpus Christi.

25 MILLIONTHS
Means
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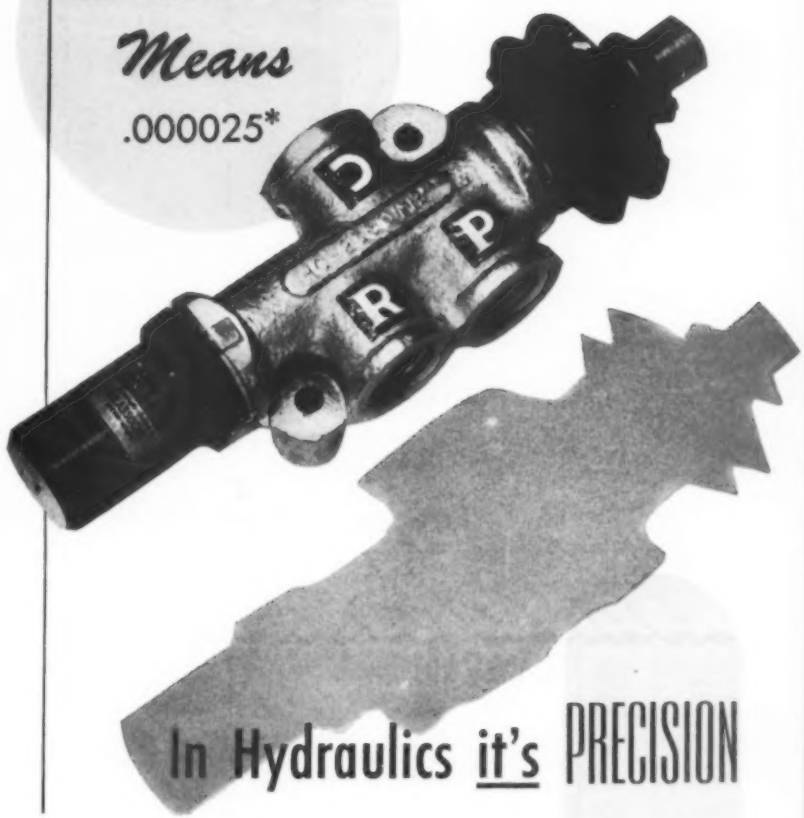

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Years of designing and manufacturing *all* types of high precision valves and hydraulic equipment have developed skills and techniques that will produce your needs *accurately* at a savings to you.

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**Spools or plungers in Air Associates slide valves are assembled with clearances as low as 25 millionths of an inch.*

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EXPORT DEPARTMENT • CABLE ADDRESS 'AIRSOC,TETERBORO'

Serving the Nation in Aviation

U. S. Domestic Airline Revenues & Expenses, July-Sept., 1950

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME
American	$ 32,143,245	$ 27,461,540	$ 1,388,916	$ 657,541	$ 1,881,049	$ 320,390	$ 156,925	$ 23,388,897	$ 11,362,896	$ 12,026,000	$ 8,754,348
Braniff	4,065,669	3,239,043	547,695	81,900	111,133	35,298	20,199	3,279,416	1,495,494	1,783,922	786,253
Capital	8,073,035	6,328,485	736,927	189,311	386,679	48,068	270,597	7,155,440	3,343,827	3,811,613	917,595
Caribbean	200,701	139,459	43,987	. . .	7,200	1,070	1,648	216,674	92,752	123,922	-15,973
C & S	2,291,035	1,660,289	461,183	70,126	53,874	16,649	17,415	2,109,933	826,949	1,282,984	181,102
Colonial	1,236,938	922,468	326,294	8,662	12,231	8,389	3,577	1,252,588	591,823	660,765	34,350
Continental	1,646,634	1,166,691	381,745	10,383	31,930	9,904	27,636	1,464,385	673,086	791,298	182,249
Delta	4,543,702	3,619,921	473,928	85,507	161,180	42,011	136,461	4,191,287	2,091,993	2,099,294	352,415
Eastern	17,325,251	15,488,146	738,523	379,242	326,220	215,968	136,725	17,112,853	9,211,163	7,901,690	212,398
Hawaiian	980,002	333,331	7,634	27,742	64,877	23,406	19,127	893,047	361,275	536,772	81,955
Inland*	910,685	701,031	181,337	6,462	12,647	7,852	. . .	694,804	327,018	367,786	215,881
MCA**	2,146,502	1,581,605	446,529	22,685	29,997	14,390	37,682	1,956,494	870,571	1,085,923	190,008
National	3,630,197	2,584,598	439,913	17,929	150,708	43,843	296,117	3,463,162	1,722,665	1,740,497	167,035
Northeast	2,127,895	1,643,934	404,626	20,338	33,219	13,721	6,237	1,731,477	840,518	890,959	396,417
Northwest	9,969,973	8,518,469	750,798	203,158	345,843	71,140	28,804	9,471,485	5,056,983	4,414,502	498,488
Trans Pacific	269,548	222,393	. . . .	595	3,292	3,120	31,848	274,714	111,585	163,129	-5,166
TWA	20,890,230	17,807,697	1,422,000	579,706	659,964	192,357	127,517	17,462,058	8,857,715	8,604,343	3,428,172
United	27,751,224	23,284,899	1,773,488	742,849	1,308,364	242,997	216,330	20,014,300	9,038,154	10,976,146	7,736,924
Western*	3,260,078	2,825,724	232,655	43,917	42,647	13,922	77,066	2,587,438	1,226,285	1,361,153	672,640
TOTALS	143,512,544	120,029,723	10,758,678	3,148,553	5,623,054	1,329,995	1,612,411	118,725,452	58,102,752	60,622,698	24,787,091

* Operations of Western and its subsidiary, Inland, should be considered as consolidated, although reports are filed separately as shown here.
** Figures do not include operations of feeder segment (Route 106) recently awarded MCA by CAB in the Parks Air Lines Investigation Case. Figures covering operations of Route 106 are carried separately on feeder airlines summary sheets.

NOTE: Under CAB filing procedures, the airlines file a cumulative quarterly financial report for July-September in place of a separate report for the month of September. Traffic data, however, are reported separately for each month.

U. S. Feeder Airline Traffic for September, 1950

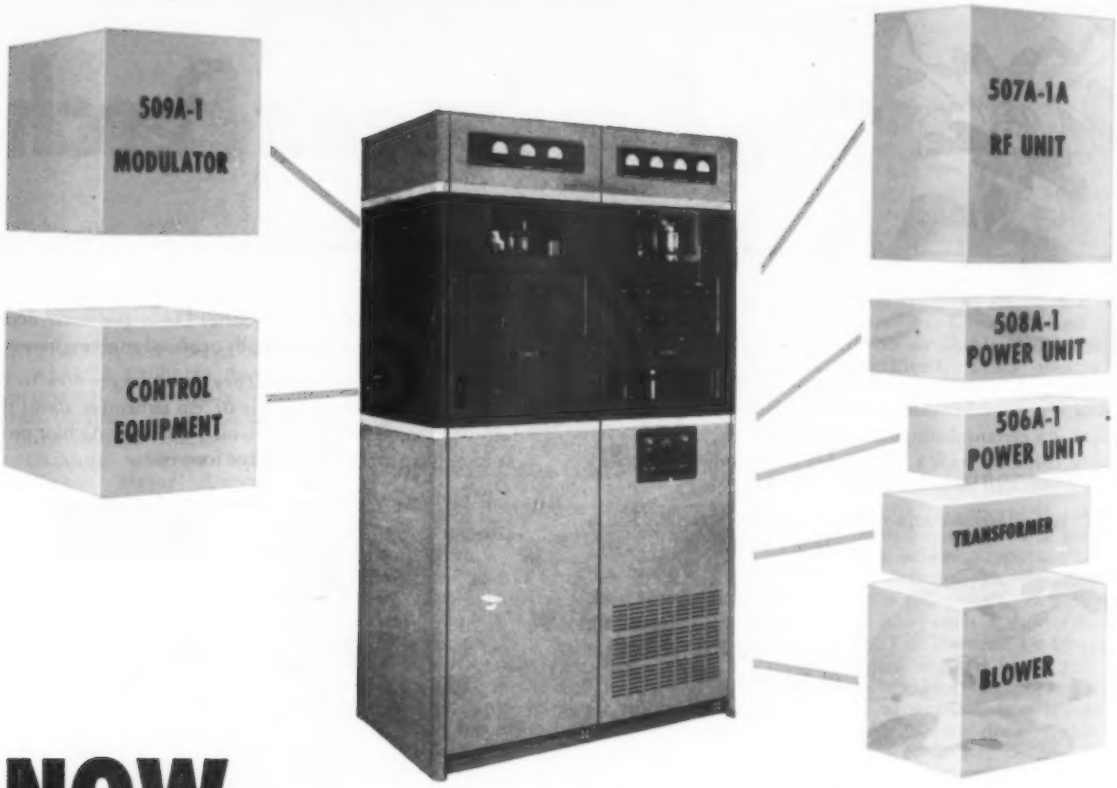
AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	MAIL TON MILES	EXPRESS TON-MILES	FREIGHT TON-MILES	TOTAL TON MILES REV. TRAFFIC	AVAILABLE TON-MILES FLOWN	% AVAILABLE TON-MILES USED	REVENUE PLANE-MILES	SCHEDULED MILES	% SCHEDULED MILES COMPLETED
All American	16,225	2,286,000	5,890,000	38.81	3,361	11,298	. . .	238,535	673,142	35.44	280,476	285,167	96.44
Bonanza	1,794	530,000	1,702,000	31.13	470	205	427	56,082	195,152	28.73	78,678	76,596	99.27
Central	1,054	118,000	460,000	25.65	1,310	. . .	1,491	14,212	47,040	30.21	154,473	156,240	97.82
Empire	4,928	912,000	2,264,000	40.28	1,876	2,348	. . .	88,684	223,437	39.69	107,836	90,480	99.99
Frontier*	6,925	1,360,000	7,281,000	25.55	6,387	5,539	16,033	215,101	729,575	29.48	363,746	366,120	98.74
MCA**	389	88,000	222,000	39.64	273	334	498	9,493	25,428	37.33	10,595	10,600	99.95
Mid-West	721	111,000	524,000	21.17	1,594	. . .	. . .	10,550	57,629	18.31	130,975	148,080	88.23
Piedmont	11,329	2,408,000	7,100,000	33.91	4,663	9,313	16,847	261,573	811,454	32.24	338,106	338,678	99.01
Pioneer	11,783	3,431,000	7,744,000	44.31	8,398	4,505	12,282	369,797	776,042	47.65	323,351	308,024	99.68
Robinson	5,354	842,000	2,354,000	35.77	2,177	5,282	3,319	81,780	221,108	36.99	116,960	119,452	94.20
Southern	3,370	581,000	3,014,000	19.28	3,865	3,057	. . .	61,752	271,705	22.73	143,533	144,300	99.25
Southwest	13,341	2,575,000	4,451,000	57.85	3,921	4,807	11,436	278,406	508,697	54.73	211,957	202,513	97.69
Trans-Texas	6,093	1,354,000	5,535,000	24.45	4,447	2,318	5,534	148,201	553,512	26.77	263,577	261,740	99.93
Turner	1,503	636,000	1,554,000	40.93	396	2,080	. . .	65,752	182,245	36.08	110,411	77,280	93.87
West Coast	7,945	1,175,000	2,410,000	48.76	573	1,023	2,238	108,640	246,106	44.14	114,379	111,834	98.72
Wiggins	303	29,000	208,000	13.94	163	. . .	. . .	2,777	21,019	13.21	52,052	68,758	75.70
Wis. Central	4,709	772,000	1,463,000	52.77	3,765	4,626	. . .	81,695	154,113	53.01	175,996	179,460	98.07
TOTALS	97,766	19,708,000	54,176,000	36.37	47,644	56,735	70,105	2,093,030	5,697,404	36.73	2,977,101	2,945,322	97.31
Helicopter Mail Service													
HAS	. . .	. . . .	. . . .	. . .	1,805	. . .	. . .	1,805	4,464	40.44	26,635	28,190	94.48
Los Angeles	. . .	. . . .	. . . .	. . .	3,518	. . .	. . .	3,518	11,826	29.75	27,534	28,870	95.37

* Formerly Challenger Airlines and Monarch Air Lines. Companies have merged and are now operating under name of Frontier Airlines, Inc.
** Figures cover feeder segment only. Route recently awarded MCA by CAB in the Parks Air Lines Investigation Case. Revenue operations began over this route September 26, 1950.

Alaskan Airline Revenues & Expenses, Jan.-June, 1950

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME
Alaska	$ 1,259,627	$ 181,654	$ 404,147	$ 55,993	$	$ 2,738	$ 594,805	$ 1,750,352	$ 1,030,522	$ 669,830	$ -490,726
Alas. Coastal	259,851	143,522	67,671	13,695	7,115	2,394	20,395	307,635	135,307	172,328	-47,783
Cordova	74,780	15,102	45,675*	. . . .	2,967	474	10,325	64,056	31,426	32,630	10,724
Ellis	218,924	114,504	76,813	17,085	. . . .	1,774	8,653	254,434	97,250	157,183	-35,510
North. Consol.	463,337	137,643	199,118	1,836	72,737	1,508	48,946	614,077	336,606	277,471	-150,740
Pacific North.	703,964	344,248	255,627	. . . .	52,253	5,964	47,291	747,092	353,006	394,086	-38,127
Reeve	259,904	83,654	129,463	. . . .	23,937	266	22,033	206,129	113,036	93,093	53,774
Wien Alaska	410,085	66,700	273,503**	. . . .	49,455	969	18,947	365,450	193,371	167,079	44,635
TOTALS	3,655,472	1,087,027	1,452,017	88,609	208,464	16,087	771,400	4,309,225	2,345,524	1,963,700	-653,753

* Includes $29,686 of retroactive mail pay for year 1949 per CAB rate orders No. E3781 dated January 5, 1950 and No. E4141 dated May 10, 1950.
** Includes $113,141 of retroactive mail pay for year 1949.



NOW . . . custom transmitters from prefabricated assemblies

You can now get the benefit of production line economies in a new Collins series 430 one or two kilowatt communications transmitter tailored for your specific requirements.

Completely constructed RF, power supply, and modulator components of new design are available for integrating in different combinations, forming finished transmitters to fulfill all requirements of ground-to-plane, shore-to-ship and point-to-point systems. The frequency range of these transmitters is 2 to 30 megacycles.

RF units can be supplied with or without Autotune* control. Manual tuned RF units may be worked in multiple to provide a multiplicity of fixed tuned instantly selectable channels or simultaneous transmissions on two or more frequencies.

Among the combinations available are the Type 431D one kilowatt, ten channel CW-FSK and phone autotuned transmitter illustrated here. It is made by combining a 507A-1A RF unit, a 506A-1 power unit, a 508A-1 power unit, a 509A-1 modulator unit, a 2-bay cabinet and a 1 KW blower.

Another combination, not illustrated, is the Type 434B-1 one KW, two simultaneous-channel CW-FSK only, manual tuned transmitter, which is made by combining two 507A-1 RF units, two 506A-1 power units, a 508A-1 power unit, a 2-bay cabinet, and a 1 KW blower. Several other combinations are available, one of which is certain to satisfy your exact needs.

Final assembly, and testing, may be accomplished at the Collins plant or at the installation site. We will be glad to give you details about the 430 series transmitter to fulfill your own requirements.

*Reg. U.S. Pat. Off.

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COLLINS

COLLINS RADIO COMPANY, Cedar Rapids, Iowa

11 West 42nd Street, NEW YORK 18 2700 West Olive Avenue, BURBANK

RAIN—by any other name, would still be a pain in the windshield if a certain distinguished Canadian doctor hadn't recently come up with a remarkable new compound, called FC-10, that will be on the market any day now.

FC-10, *an invisible rain-repellent wax*, can be applied to a plane's windshield in about fifteen minutes, and one application will last from a week to two months, depending on the care and preparation of the windshield.

There's a compound for glass, another for plexiglass. Either sheds rain like water off the proverbial duck's back, assuring high visibility at speeds ranging from 600 down to 50 miles per.

No matter how you slice it, this is a real boon, especially to planes without windshield wipers.

BUT NOW—A PLAY!

(The scene is that junk heap out behind Hangar 5. A worn-out valve and a beat-up piston ring are discussing their misspent lives)

VALVE: Look at it this way, Ferdie! If I had my life to live over again, I'd never touch a drop of anything but Gulfpride Aviation Oil—Series D!

RING: Same here! It was just rotten luck I learned too late that Gulfpride Aviation Oil—Series D—is the finest detergent dispersant oil for horizontally opposed engines there is!

VALVE: Pilots are like that! They never forget how to do an outside loop, but how many of 'em remember about the only aviation oil put through Gulf's exclusive Alchlor process to remove carbon and sludge formers?

RING: You can say that again! And besides, Gulfpride Aviation Oil—Series D—increases those periods between overhauls up to 100%! Ah, well, better luck next incarnation —what?

GULF

AVIATION PRODUCTS

Gulf Oil Corporation . . . Gulf Refining Company

Detroit Air Cargo Terminal Pioneers New Loading Ideas

By KEITH SAUNDERS

A CONTRACT has been awarded for what is probably to be the first permanent functionally designed air cargo terminal of any magnitude to be built in this country.

The building will be located at Detroit-Wayne Major Airport and will be adjacent to but separate from a new passenger terminal. Designed by Airways Engineering Corp. of Washington in association with Giffels and Vallet of Detroit, the cargo building will be of reinforced concrete and brick construction and will cost approximately $350,000. Features will include:

- Single-level loading from truck bed to aircraft hatch.
- An experimental 50-foot aircraft turntable and a newly designed adjustable gangplank.
- A loading dock of sawtooth design.
- Ample space for refrigeration and bonded storage.

In planning the cargo building, the designers kept in mind the considerations that the expanded Wayne-Major is to be Detroit's major air freight terminal, and it must be expansible to serve the future needs of the city.

Can Handle Growth

Detroit's present cargo volume is approximately 30,000 tons yearly, with about 10,000 tons handled at Wayne-Major and the remainder at Willow Run and at Detroit City Airport. Substantial increases are indicated for the future, and with its new cargo terminal, Wayne-Major expects to handle most of the additional volume.

Space analysis for the cargo building is as follows:

Function	Area in Sq. Ft.
Cold storage rooms	740
Offices	512
Toilets and lockers ...	495
Warehouse (storage) ..	15,088
Sub-total	16,755
Aircraft loading dock ..	9,600
Truck loading dock	2,853
Sub-total	12,453
Grand Total	29,208

Here's how the designers arrived at these figures:

Using an average of a five-ton payload per cargo aircraft and applying the factor of 100 square feet of warehouse space per ton or 500 square feet of outgoing cargo space plus 500 square feet of incoming cargo space, they came up with an indicated 1,000 square feet of floor space per flight.

Space Allocation

Since maximum efficiency of cargo handling today assumes a 30-minute minimum period at a loading position, an absolute minimum of 2,000 square feet of warehouse space per hour per position is held to be required. Because these figures are a theoretical goal rather than an actuality, a 100% factor of safety was added in the design so as to provide 4,000 square feet of warehouse space per cargo plane position. Thus, for the initial four positions at Wayne-Major, an initial floor space of 16,755 square feet, including offices and utilities, is to be provided.

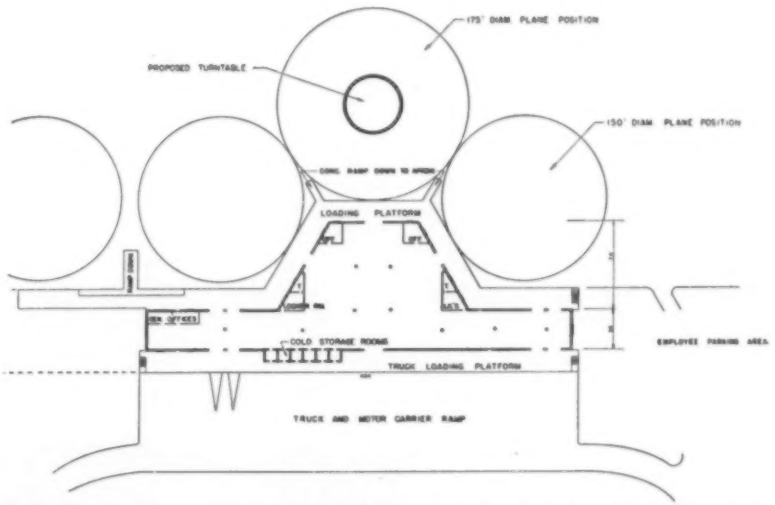
In addition, adequate loading platform space has been provided to serve not only normal loading and unloading operations but also to take care of extra space needed for the temporary removal and reloading of through cargo.

To facilitate freight handling, the height of the warehouse floor, aircraft and truck docks are all on the same elevation with the loading door level of the various types of cargo aircraft (eight feet above the apron, four feet above truck roadways). Whether the freight parcels are handled on dollies, roller-pallets or portable roller conveyors, they will move on one level between the motor truck and the aircraft. Elevators and forklifts will be available only for unusual conditions. Thus nearly all freight movement will be horizontal, with considerable savings in time and expense.

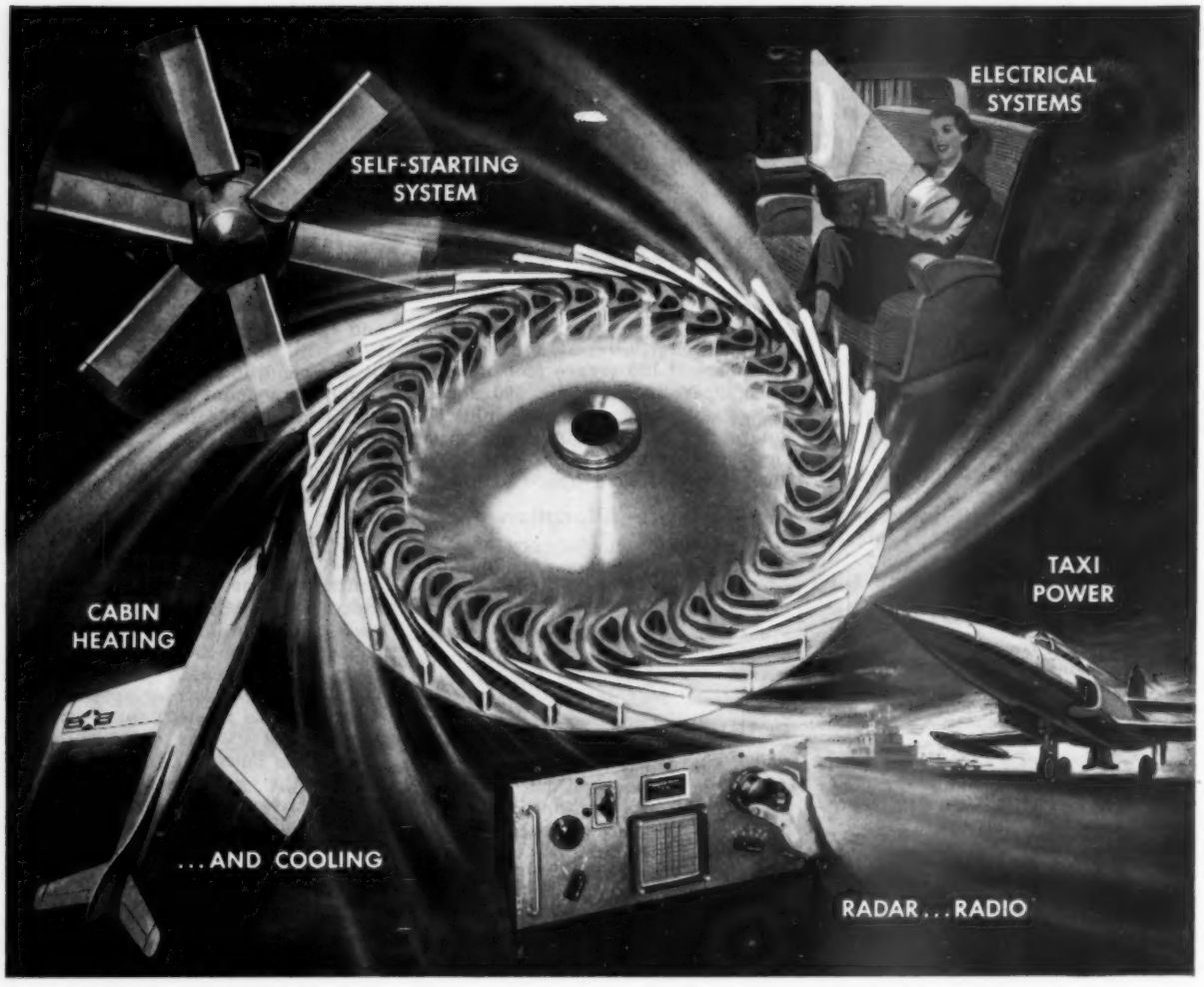
Loading Gangplank

The manually operated aircraft gangplank to be used at the terminal consists of a bridge supported by two gantries on castered wheels. It is provided with a telescoping extension at each end, and each gantry support can be raised or lowered by hydraulic jacks. It can readily be rolled into position extended from about 40 feet to 80 feet, as needed, and leveled to the aircraft loading door. Dollies or pallets can be rolled or tractor drawn across the gangplank or portable roller conveyors can be placed thereon for continuous loading or unloading.

An aircraft turntable is located in the center of each cargo position. Each of these will be capable of handling aircraft weighing up to 200,000 pounds. It is a ring or doughnut design with an outer periphery of 50 feet in circumference. The inner section of the ring remains as a stationary part of the apron and is pro-



Building Plan—Overall building plan of Detroit-Wayne Major Airport's proposed new cargo terminal shows truck and motor carrier ramp on one end of building and aircraft loading ramp on the other, with space inside the building for cold-storage rooms, lockers and offices. Saw-tooth design of loading platform allows each warehouse and gather area to be centered between three loading positions.



REVOLUTION IN POWER

As modern aircraft extend their speed, altitude, and range — their demands for auxiliary power increase enormously.

This auxiliary power is vital — on the ground or in flight — for refrigeration, heating, operation of electrical equipment, radar and radio, push-button automatic starting, and many other auxiliary functions.

AiResearch has designed and manufactured a revolutionary new kind of *pneumatic* power system that produces distinct advantages over other types of auxiliary power.

This AiResearch pneumatic auxiliary power system utilizes air turbines driven by bleed air from small gas turbines while plane is on the ground, or by the main engines while plane is in flight. Using a minimum number of energy conversions, this system supplies adequate power, yet embraces the virtues of *light weight, small size* and *versatility of application.*

Already in operation on America's first turbo-prop airplanes, the Convair P5Y-1 and the Douglas A2D, AiResearch pneumatic equipment is available to supply the all-purpose auxiliary power necessary for every type of high speed, high altitude aircraft.

● Whatever your field — AiResearch engineers and technicians invite your toughest problems. Designers and manufacturers of 1) Temperature Controls; 2) Electric-Electronic Equipment; 3) Cabin Superchargers; 4) Air Conditioning; 5) Gas Turbines; 6) Heat Transfer Equipment; 7) Pneumatic Power Units; 8) Cabin Pressure Controls and Air Valves.

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vided with modern service pits housing refueling equipment, starting power, air, water and other service necessities.

The turntable is electrically rotated 360° per minute and electrically braked and held in position, permitting all loading doors on either side of the aircraft to be brought into position toward the terminal dock. The steel turntable revolves on tracks set in a concrete pit. It is actuated by a rack and pinion drive and its edges are electrically heated during icing conditions. The turntable will make it possible to immediately position a cargo plane and refuel and service it during loading operations.

Sawtooth Dock

The aircraft loading dock of the terminal will be sawtooth in design with warehouse and gather areas placed within the teeth so as to be centered between three loading positions. One such gather area of approximately 30,000 square feet will be included in the first phase of construction, and additional similar units will be provided as the demand justifies.

It is believed that the combined utilization of the numerous features incorporated in the design of the new Detroit cargo terminal will permit handling of three or four times as many cargo flights in a given time with half as many employes as are now used.

CAA AIRPORT GRANTS

For the three weeks ended November 24, the Civil Aeronautics Administration made Federal-aid airport grant offers totaling $1,031,055 to 20 communities, as follows, with airport classes in parentheses:

Colorado: Limon Municipal (2), $5,100.
Connecticut: Bradley Field, Hartford (4), $500,000.
Georgia: Macon Mun. (4), $36,855.
Idaho: Orofino Airport (1), $1,959.
Illinois: Midway Airport, Chicago (5), $160,000.
Michigan: Wayne Major, Detroit (6), $260,000; K. I. Sawyer Airport, Marquette (3), $3,500; St. Clair County Airport, Port Huron (3), $20,000.
Minnesota: Littlefork Mun. (1), $6,000; Crystal Airport, Minneapolis/St. Paul (1), $15,250; Flying Cloud Airport, Twin Cities (2), $5,250.
Mississippi: Gulfport Mun. (6), $6,822.
Montana: Sunburst Airport (1), $14,350.
Nebraska: Beatrice Mun. (2), $17,046; Chadron Mun. (3), $10,000.
Nevada: Elko New Mun. (4), $5,452.
New Mexico: Tucumcari Mun. (3), $11,071.
North Dakota: Linton Mun. (1), $2,400.
West Virginia: Wood Co. Airport, Parkersburg (3), $30,000.
Wisconsin: Alexanderia Mun., Wausau (3), $15,000.

These boosted to 1,589 the number of grant offers made under the Federal Airport Program and raised to $131,242,029 the amount of Federal funds involved.

AIRPORT NEWS DIGEST

Beacon Disposal Halted: Pressure from local and personal flying groups, notably the National Aviation Trades Association and the Aircraft Owners and Pilots Association, prompted the CAA in late November to halt its program of decommissioning and disposing of certain airway beacon lights and to ask its regional offices to take a reading on the need for beacons in their areas. Reports from the regions were due in this week, and CAA will use them to re-evaluate the beacon discontinuance program as an economy measure.

CAA planned to discontinue operation of all airways beacon lights except those which mark airports and hazards or define a point on an airway in mountainous terrain, and it was thought that state aeronautical agencies and local communities would welcome gifts of a majority of the surplus beacons. From time program was started last July to November 15, 945 beacons (of a total of about 1,775) had been decommissioned, but decommissioning consisted only of pulling a switch and comparatively few of the beacons had been disposed of prior to the flashing of the "stop" signal.

Of 21 lights that had been abandoned, five had been transferred to cities or states for continued use at their present sites; 33 other beacons had been transferred to local agencies for use at other sites; and negotiations were pending for use of 15 others at present sites and transfer of 32 others for use elsewhere. So, actually, not much damage has been done if CAA should now decide that value of the beacons to private and executive aircraft outweighs the economies involved. Such a decision is by no means certain, however.

Bond Foes Revealed: Three railroads—the Chesapeake & Ohio, the New York Central and the Louisville & Nashville—have been listed as contributors to the $8,600 campaign fund used to defeat the $6,000,000 bond issue for the proposed Blue Ash Airport at Cincinnati in the recent election. Each was listed for $250 on the record. Meanwhile, further work on the new field is likely to be stymied for a while due to lack of funds, but the Federated Civic Association of Cincinnati is on record as favoring a plan to keep the airport issue alive and take steps to have it placed on ballots at the next municipal and township elections. Of 12 bond issues on the ballot last month, the airport issue was the only one that failed to win the necessary 55% favorable vote.

TERMINALS

• **Bids for a terminal building** of simplified design at Hulman Field, the Terre Haute (Ind.) municipal airport, are to be opened Dec. 18. Lowest bid received on first advertising was $425,000, or nearly twice the available funds.

• **Paducah (Ky.) Airport Corp.** has applied for $100,000 in Federal funds as a formal start on a $200,000 expansion program, including erection of an administration building, at Barkley Field.

• **Cleveland is getting ready** to hire a private engineering firm to draft detailed plans for new terminal building to be erected with recently approved bond funds.

PAVING, GRADING

• **Greenville (S.C.) Municipal Airport** is in phase one of its $350,000 improvement program, which includes resurfacing of present runways, extension of the N-S strip, grading and turfing.

• **Bids are to be opened this week on clearing,** draining and grading the area for construction of the 6,000-foot instrument runway at Kent County Airport, Grand Rapids.

BOND ISSUES

• **Voters of Chillicothe, Ohio, voted down** a proposed $350,000 bond issue for a municipal airport.

• **Harlan County (Ky.) voters defeated** a county airport bond issue by a slim margin—or so it was thought—but an official recount gave the issue the required two-thirds of affirmative votes.

LIGHTING

• **Contract for installation of a high-intensity** runway lighting system at Cochran Field, Macon, Ga., has been let.

Most air line executives prefer HERTZ...AND ONLY HERTZ... because Hertz is best equipped to give complete car rental satisfaction to their passengers

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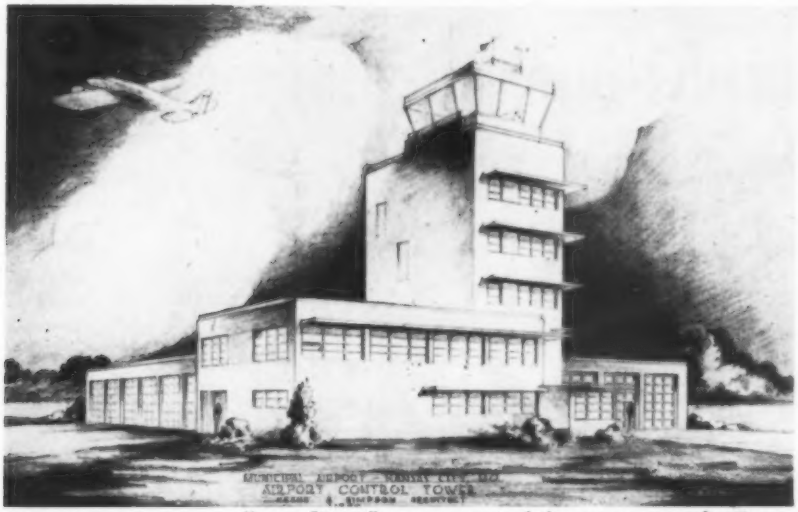
Hertz now maintains stations at airports in the following cities: Long Beach, Palm Springs, Cal.; Hartford, Conn.; Tampa, Fla.; Atlanta, Ga.; Carbondale-Murphysboro, Chicago, Ill.; Evansville, Ft. Wayne, Hammond, South Bend, Ind.; Louisville, Lexington, Ky.; Baltimore, Md.; Bedford, Boston, Mass.; Minneapolis-St. Paul, Minn.; St. Louis, Mo.; Whitefish, Mont.; Newark, Teterboro, N. J.; Carlsbad, N. Mex.; Rochester, Syracuse, N. Y.; Charlotte, Raleigh-Durham, N. C.; Canton, Cincinnati, Dayton, Toledo, Ohio; Pittsburgh, Sharon, Pa.; Providence, R. I.; Memphis, Nashville, Tenn.; Midland-Odessa, Texas; Salt Lake City, Utah; Newport News, Va.; Yakima, Wash.; Lake Delton-The Dells, Madison, Milwaukee, Wis.; Honolulu, T.H.; Toronto, Ont., Canada.



Service Building—Kansas City will wrap up most of the non-passenger functions of its municipal air terminal in this proposed new service building, contracts for which have been let. Building will house control tower, aviation board offices, fire station and the airport's mechanized equipment. Building will cost $283,000.

KC Control Tower Building To House Service Equipment

On the theory that airport passenger terminals should be reserved for the use of passengers and the airlines and concessionaires who serve them, Kansas City has started construction of a service building to house a number of functions now quartered in the administration building and elsewhere about the airport.

The building will house the Aviation Department's offices, the airport fire department, all the necessary motorized equipment on the field, and —most importantly—all control tower personnel and equipment.

The tower will be located atop the new building, which is located at approximately the center of the field between the main taxiway and the airport roadway which serves the terminal area, hangar area and other airport activities.

Tower Needs Room

The building was designed by the architectural firm of Keene & Simpson in cooperation with the Civil Aeronautics Administration and the city authorities. One discovery made in planning the building was that the CAA would require considerably more space in connection with operation of the control tower than had been the case prior to the implementation of the new electronic landing aids program.

Consequently, in addition to the control tower, traffic control personnel will occupy all of the third, fourth and fifth floors of the building.

The fire department is a completely separate entity, having space for three trucks and auxiliary rescue equipment, a squad room, kitchen, alarm room, dormitory, locker room, toilet and shower. The station will be manned by a company of the city fire department on a 24-hour basis.

It is contemplated that the garage will be of sufficient size to provide inside storage for all of the Aviation Department's motorized equipment. Side doors offer easy access, and there is sufficient depth to park two cars and a tractor in tandem in each bay.

The building will cost approximately $283,000 and should be ready for occupancy next summer.

NYPA Sells Airport Bonds

The Port of New York Authority has sold $13,000,000 worth of Air Terminal Bonds, proceeds of which will be used to finance further improvements at Newark, Teterboro, La Guardia and Idlewild airports. Harriman, Ripley & Co., Inc., and associates bought the bonds, which will be due December 1, 1980, and will bear interest at the rate of 2.20% per year. Bonds brought a price of 96.3599% of par.

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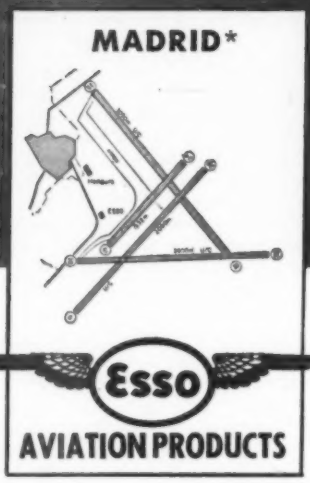

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ESSO EXPORT CORPORATION, AVIATION DEPARTMENT, 25 BROAD STREET, NEW YORK 4, N.Y.

Experimental Spraying-Dusting Plane Flies

. . . . *fits farm needs but faces production dilemma*

By BARBARA J. WARD

THE FIRST pure-bred agricultural plane, designed from the start of the blueprints as farm equipment, made its initial flight December 1 at College Station, Texas. The experimental aircraft represents unique government-manufacturer-university cooperation to build a dusting-spraying plane directly aimed at farm use and farming conditions.

Chances for this aerial offspring of the plow going into production at this time of semi-mobilization look dubious at first glance. Aside from difficulty now being experienced in obtaining materials, two lightplane manufacturers—Ryan Aeronautical Corp. and Texas Engineering and Manufacturing Co.—have suspended lightplane manufacture to devote full attention to defense needs, and Cessna Aircraft Corp. follows the trend in stating that it is not contemplating any new 1951 models.

But, other possibilities exist. Such equipment is needed to kill disease insects and increase crop production in backward Asiatic countries which are scheduled to receive technical advice and assistance under the recently approved Point Four Plan. And the armed forces are considering establishing a special unit with an organizational technical order for aerial control of insects and rodents in overseas military bases and occupied areas.

Economic Coverage

The new plane with its 200-hp. engine would prove considerably more economical in covering areas than the modified DC-3's which sprayed DDT over Pacific Islands in World War II. Once the plane is over the initial hurdles of material procurement and tooling for production, it has an expanding civilian market which has increased from an estimated 3,700 aircraft in 1949 to 4,906 aircraft equipped for agricultural purposes at the start of 1950.

Industry representatives estimate that the cost of producing the farm plane will run between $10,000 and $15,000 per plane, depending on the volume produced. In view of the CAA poll of flying farmers taken last year which indicated that the majority thought the price for such a farm plane should be $2,000 to $3,000, the expected high initial price would be a limiting factor on quantity sales to the average farmer.

The general outline of qualities desired in an agricultural plane originated from a survey of Flying Farmers. A CAA grant of $50,000 put the work under way at the Personal Aircraft Research Center, Texas A. and M. College. CAA regional offices gave advice and assistance and aviation manufacturers contributed to the project as follows:

Continental Motors Corp., a 200-hp. E-25 engine;

Cessna Aircraft Corp., landing gear;

Aeronca Aircraft Corp., engineering services and salaries;

Beech Aircraft Corp., rudder pedals;

McCauley, Propeller Co., an aluminum propeller;

Koppers Co., an Aeromatic propeller;

Goodyear Tire and Rubber Co., wheels, brakes and tires;

U. S. Rubber Co., tank liners;

Vic Pastushin Industries, Inc., adjustable seat;

American Seating Co., inertia reel;

Aircraft Conversion Co., instruments and hydraulic equipment.

Year in Building

Developed under the direction of Fred E. Weick, the plane took to the air just one week less than a year after development work started.

The plane is an all-metal, low-wing, tubular steel frame aircraft with a 39-ft. wing span, 29 ft., 8 in. length, and rugged landing gear having steel shock absorbers on the main gear and the full-swivel, steerable tail wheel. The plane grosses 3,400 pounds, and weighs 1,900 pounds empty. Gas capacity of 48 gallons gives it a 400-mile range.

With a full load, it clears a 50-ft. obstacle on takeoff in 1,300 feet; cruising speed is 100 mph; operating speeds are 60 to 90 mph; rate of climb is 600 fpm; service ceiling 12,000 ft., and landing speed is 45 mph full load or 37 mph without pay load.

Outstanding features of the plane are:

• **Load is ahead of the pilot**, with a 27-cubic-ft. dust hopper in the nose which releases dust through a sliding-gate distributor, and two spray fluid tanks in the wing center sections which total 150 gallons.

• **Spray scheme** uses two rubber-

LARGE SPRAY tank doors are located for on-the-ground loading of experimental agricultural aircraft. Non-corrosive aircraft materials are used wherever possible. Note view from cockpit.

THE Washington View

By Barbara Ward

LOOK FOR the Air Force to announce soon the opening of additional basic flight training fields to be operated by civilian contractors. Two more bases probably will be opened—which is in line with the previous announcement that 1,350 USAF basic pilots will be trained by civilian-operated training fields in the fiscal year 1951.

Deadline for bids to operate Greenville AFB, the first USAF basic flight training field to be opened since the start of Korean hostilities, was December 4. Although requests for information concerning the field totaled close to 2,000, only about 75 civilian flight school operators actually bid on the base. The military contingent of about 70 men is now moving into the field and will be commanded by Lt. Col. Noel T. Cumbaa of Phoenix City, Ala., who formerly was with the Training Command at Randolph Field.

The size and condition of the inactive Greenville AFB had some civilian operators worried that the Air Force might be stacking the chips against them to show that civilians could not turn out a comparable pilot cheaper, as stated in the Stanford Report. It is hard to be economical with 387 boarded-up buildings and the only railroad track is considered unfit for use by the railroad. But information that additional bases are coming kills that rumor.

•

Crop dusting pilots will be interested to learn that the Department of Agriculture's next year-book will be on insects. Last year's was on Grasses, and when the Department of Agriculture sets out to cover a subject, it covers it thoroughly. The new book will give complete information on types of insects, life habits, and chemicals that will effectively eradicate them. In addition, the book will have a chapter on "Research on Aircraft for Applying Insecticide" written by George Childress, Chief of CAA's Aviation Extension Division, and J. S. Yuill and D. A. Isler of the Department of Agriculture. Plans are to have it off the press late next summer, but we'd like to see it speeded up in time for the crop dusting season. The subject never has been wrapped up in one book where a crop duster could put his hands on it.

•

CAA's decision to halt its airway beacon discontinuance and disposal program and have their regional offices re-study the need for beacons in their areas pleases the Washington representatives of Aircraft Owners and Pilots Association, to put it mildly. AOPA has been campaigning against beacon discontinuance and felt so strongly on the subject that they sent letters to regional airspace subcommittees telling them if the beacons were cut off and anyone got killed, it was their responsibility. Most small airport operators we've talked with agree with AOPA. It might be nice to have a surplus beacon rotating on the hangar roof at the home airport, but for night charter flying they're a whole lot more useful spaced along the route. And few Piper Cubs are equipped like airliners.

•

Now that CAA regional offices have been designated the forwarding agency for emergency parts requests from fixed base operators, the mobilization picture is beginning to take form. The structure is erected, and while it may take time to board in the open spaces, operators know that they have representatives to carry their needs to the National Production Authority. And the fears that private aviation would be discounted in the event of a war emergency appear unwarranted: CAA Administrator Donald W. Nyrop stated on December 1 that more than 2,000 flight and ground schools may be needed for training purposes if the armed forces air personnel requirements increase greatly.

Agricultural Plane Performance

Operating speeds	60-90 mph
Maximum speed	115 mph
Cruising speed	100 mph
Landing with pay load	45 mph
Landing without pay load	37 mph
Climb with full load	600 fpm
Service ceiling	12,000 ft
Range	400 miles
Take off distance to clear a 50 ft. obstacle	1,300 ft
Spray-dust load	800-1,200 lbs

lined tanks and an engine-driven pump to deliver the fluid through manifolds to wing outlet nozzles.

• **Ground level loading** of spray tanks.

• **Normal maximum load** about 800 pounds of dust or spray, with provision for overload up to 1,200 pounds under favorable operating conditions.

• **Good visibility** with the pilot seated high and the nose sloping down over the engine to give visibility forward and down, to the back, and in the direction of turn at the end of the swath. Over-the-nose visibility facilitates taxiing on unprepared fields.

• **Full-span slotted flaps** and slot-lip ailerons give good performance and handling qualities adapted to dusting and spraying work with heavy loads from unprepared fields. Allows flying low over crops at relatively slow speeds, and climbing over obstacles to turn back tightly for the next pass.

• **Protection against electric wires** contacted in flight is provided by sharpened landing gear legs, guide tubes to carry wires back over the cockpit, and a cable running from the cockpit to the top of the tail fin.

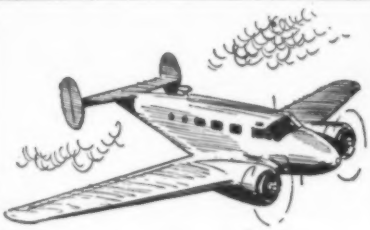
• **Crash protection for the pilot** by putting him behind all heavy masses and protecting him with a long forward structure and wings. A 40-G seat, belt, and shoulder harness are provided. An inertia reel allows the pilot freedom of action.

• **Simple construction** for ease of maintenance. The all-metal covering is made up of sheets of single-curvature metal, relatively easy to repair in the field.

• **Wing airfoil** is a modified NACA 64021 section with 286-sq.-ft. wing area. Wing tips and horizontal stabilizer tips are detachable.

• **Strong headrest** gives turnover protection, with bracing running halfway back to the empennage.

• **Experimental dust hoppers** are provided in the outer wing panels for experimentation in possible improved distribution of dusting, spraying, seeding and fertilizing.



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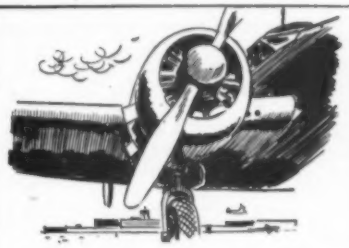

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Custom seating arrangement for 7, 8, or 9
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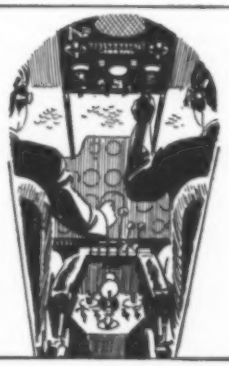

And it's the choice of pilots. Extremely efficient instrument and control layout, with major operating units conveniently located on central pedestal.

Cross-Country

WITH LOCAL OPERATORS

By Page Shamburger

SOUTH CAROLINA—Greenville Municipal, Greenville, S. C., is in the midst of a big construction program including a new administration building, hangar, tower and restaurant. One runway is being extended and all runways and ramps resurfaced. **C. L. (Andy) Andrews**, manager, is also the director of the South Carolina Aeronautics Commission. Here, the tower boys are so friendly and helpful you can really enjoy the convenience of a radio!

Andrews

Lee Smith, genial operator at **Carolina Aviation**, Greenville, is specializing in transient trade and has U-Drivit Cars. Wiring in advance guarantees a waiting car, or if you only want a ride to town Lee will take you. He's going all out on service and will do everything to make your flying more enjoyable.

Jean Brannon, the other operator on Greenville Municipal, has the simple solution to the aviation labor problem. As he says, "If I'm dissatisfied, I don't fire my employes . . . I beat the —— out of 'em." Reason? Three of his four employes are members of the family . . . his son Neal, his daughter and son-in-law, Joan and Bill Monday.

Besides the usual flying services, Jean has an ambulance plane and does a world of advertising and promoting. Bob Poole, a radio announcer in Greenville, screams "Fly at Brannon's" all during the early hours of the morn, interrupted only by weather forecasts for light aircraft. The service at Brannon's is top-notch with windshield cleaning and vacuuming, nothing less. Transportation to and from town morning and evening, too.

Hats off to the **South Carolina Aeronautics Commission** for its aviation education program as well as consistent good work in maintaining the state's airports.

With the "Program of Education on Aviation," S. C. Becomes one of five states in the U. S. with a full time air education program and staff. **Miss Amalie Stone** of Greenville is the director and, with an avid interest in aviation as well as a background of aeronautical engineering and flying time, will make this program go far.

Booklets and films have been collected to cover all ages and interests from the first grade through teachers and pilots. The commission has also

Dave Wolfe, South Carolina Aeronautics Commission, and Amalie Stone, director of education, S. C. Aeronautics Commission.

prepared a series of lectures explaining airplanes and their values. Amalie does the arranging and is on hand for every presentation. She has some bookings into March.

The commission does remarkably well with the tough job as middle man with CAA, VA, and the local operators. It also maintains many airports that otherwise would be on the white cross list.

For an operator who makes you glad you're in the business, it's **Berley Kittrell** at **Dixie Aviation**, Owens Field in Columbia. Berley is a friendly guy who's been operating long enough to take it seriously, but not too much so. Between student instruction, radio repairs, and transient gas trade, he's doing o.k. As for service, before your wheels touch the runway, Freddy is out with the checkered flag signaling you to Dixie. Freddy is a line boy extraordinaire with a grin from ear to ear, vacuum in one hand and windshield cleaner in the other. You just have to buy gas whether you need it or not. Berley says Freddy has worn out one vacuum cleaner and bought another himself to replace it. He has a pilot's license now, too, and is working on his A & E.

Berley Kittrell, Dixie Aviation Co., Owens Field, Columbia, S. C.

Berley Kittrell plans to extend his operations with a branch at Camden, known as the **Camden Flying Service.**

Note for Midget Racing Pilots. **Curtis Pitts** is building a new racer for **Luther Johnson, Johnson Flying Service,** and it should be delivered on Christmas Day. The new one is similar to "67" and built from ideas of the late Dave Long. Miami's show, this year, will just not be the same without some of these racing midgets.

Luther is the operator on Greenwood County Airport across town from his old airport. Greenwood is another ex-military field and is very fortunate to have as well-known and liked operator as Luther. Besides the midgets, students seem to be quite plentiful . . . plentiful, I say, for he has two fulltime

Midget Racer 67, owned by Luther Johnson, Johnson Flying Service, Greenwood County Airport.

instructors and two line boys. AND, one of the instructors is a girl! **"Yankee" Carey**, an ex-WASP, says she still has a sick feeling every time she solos a student. The main attraction at Greenwood is TAC, a boxer, who, in a matter of minutes can express your exact sentiments by facial expressions. Luther says the majority of his transients come by only to see TAC. I agree only partially . . . for Greenwood will always be on the top of my list for the friendliest best folks ever met.

Ben Johnson, Carolina Aero Service, Anderson Municipal, is selling Mooneys and seems quite pleased with the little planes too. He says he's not making money hand over fist, by far, but he's not complaining. Ben and his instructor, **Lee Blume** have given night flying time to every student getting a private ticket in the last year.

This is an excellent idea for anyone expecting to do cross-country. No telling when you might get caught a few minutes after sundown and think what a comfort it would be to have an idea what the ground looks like dark. Anderson's ideal for night instruction, too, with clear approaches and huge ex-military hardsurfaced runways.

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the bulletin board

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Displayed Advertising: $10.00 per inch for less than 15 inches in one issue or in any 12-month period. For more than 15 inches, $8.50 per inch; more than 30 inches, $8.00; more than 60 inches, $7.50; more than 90 inches, $7.00; more than 120 inches, $6.50. Space units up to full pages accepted in this section for classified-type advertising.

Forms close 20 days preceding publication date. Address all correspondence to Classified Advertising Department, AMERICAN AVIATION PUBLICATIONS, 1025 Vermont Ave., N. W., Washington 5, D. C.

Ort's new 1951 Catalog now ready. Free. Write Karl Ort, Dept. 51D, York, Penna.

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West Coast's largest stock of Douglas, Constellation and C-46 parts; P&W, Wright engine parts and accessories. Complete stock AN hardware, fittings, electrical parts, etc. Plus a $40,000,000 inventory of new and surplus parts.

Complete catalog on request.

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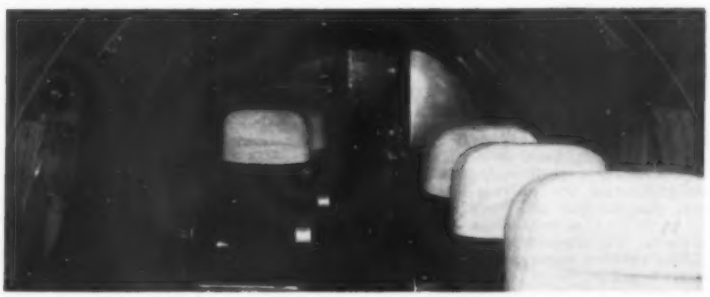

CONVERTED B-17

This plane is being offered for sale at a price of only $125,000. Above interior cut gives general idea of ships fittings which include electric stove in galley, washroom and ample baggage space.

Seating capacity is for 25, plus crew. This ship is and has always been kept in A-1 mechanical condition. Write Foreign Missions Department, 434 West Pacific, Springfield, Mo.

CAA Airworthiness Directives

North American AT-6 aircraft must be inspected for inter-granular corrosion of all accessible structural aluminum alloy parts at the next and succeeding annual inspections. Points to be checked include: fuselage bulkheads, fuel-cell doors, wing-attach angles, trailing-edge wing ribs, horizontal-stabilizer spars, inboard ribs on each outer wing, and the baggage-door frame. Full reliance cannot be placed on visual inspection. A screwdriver or other sharp pointed instrument should be used to explore for dull sounding areas and for metal which may be penetrated easily when pressure is applied. Required by Airworthiness Directive 50-38-1.

Beech Bonanzas with non-cambered elevator tabs must be equipped immediately with cambered tabs Part No. 35-660040-52 and -53 or restrict the rear c.g. to 83.7 to 84.4 at 2,650 lbs. and 75-9 to 84.4 at 2,140 lbs., according to Airworthiness Directive 50-42-1.

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WINGS OF YESTERDAY

25 Years Ago

A joint air and steamship service for the transfer of steamship passengers from Miami, Fla., by air to Palm Beach and Jacksonville was announced by the Admiral Line and the Fleetwood Flying Service of Miami.

•

The contract for carrying air mail between Detroit and Chicago and Detroit and Cleveland was awarded to Ford Motor Co. The mail was to be carried at the usual rate of 10c an ounce for all "feeder" lines under 1,000 miles in length.

•

The report of the President's Air Board, made public on December 2, 1925, stated in part, "We do not consider that air power as an arm of national defense has yet demonstrated its value . . . for independent operations of such a character as to justify the organization of a separate department. We believe that such independent missions as it is capable of can be better carried out under the high command of the Army or Navy, as the case may be."

10 Years Ago

(IN AMERICAN AVIATION)

U. S. scheduled airlines agreed to release $7,500,000 worth of planes and engines which they had on order for 1941 delivery in order to meet national defense needs for the Army and to permit immediate shipment of four-engine bombers to Great Britain.

•

The Glenn L. Martin Co.'s new B-26 medium bomber, first of 1,100 for the Army Air Corps, was test-flown on November 29, 1940.

•

Curtiss-Wright's twin-engine, 36-passenger transport was selected by the Army Air Corps as the basic design for a new troop transport and cargo plane.

LETTERS

Costs of Aviation

To the Editor:

The November 13 copy of *American Aviation* has been on my desk for several days and I have been pondering about the advisability of expressing some opinions to you with respect to your editorial appearing on the front cover. I have subscribed to *American Aviation* for several years and have generally enjoyed looking it over.

As I am a railroad man you probably will immediately pin a label of "railroad propaganda" or "misleading bit of rubbish" or "such drivel" to any comments I might make.

I was rather peculiarly impressed, however, in further glancing through this particular issue to run into the article starting on page 61 under the heading of "Airports" which explains a drastic cut in airport allocations by the Budget Bureau. The totals in the box on page 62, which apparently are mixed up somewhere or the other, ranging from 24 million dollars to a maximum of 61 million dollars, strike me as a sizable volume of subsidy which would certainly be quite a burden on the airlines if they had to underwrite the total cost.

Of course the 80% of air mail being handled at a service rate was an appropriate answer for you to make, but you might have completed the story by referring to your own article in the same issue about airports, then you might have further mentioned the fantastic amounts of subsidy being passed out today to the so-called feeder airlines; and I am not so sure that every man in Korea would share your reckless statement that Korea would have been lost had it not been for the quick work of the airlines. Possibly they might feel they are entitled to some of the credit and, possibly too, they might remember that, as in the last war, probably 90% of those men were transported via rail and ship to the theater of operations.

It also appears to me that, quite possibly, General Electric Company, being a substantial taxpayer, might be a bit concerned about the manner in which some of their tax dollars are being used.

Then, again, you might also have quoted, in keeping this an "Incredible But True" story, from report of the Committee on Appropriations of the House of Representatives to the House on H. R. 7786, the Omnibus Appropriation Bill for 1951, the following:

"The Committee again calls attention to its concern over the rapidly mounting cost to the Federal Government of the activities provided for in the appropriations for the Civil Aeronautics Administration. It wishes to reemphasize its position that the Federal Government cannot indefinitely continue to pay these costs which should be borne to some appreciable extent by the airlines. The commercial airlines must bear a reasonable share of the cost of establishing, improving, and operating the airways."

I doubt if you could accuse the House Committee of being a propaganda vehicle for the railroads.

H. F. ENO,
Passenger Traffic Manager,
The Denver and Rio Grande Western Railroad Co.

(Editor's Note: Thanks to Reader Eno for a provocative letter. Here are our comments on his various points:

1. Airports are a combination of Federal and local capital investment. The record of use payments by airlines is good enough to dispose of arguments that airlines don't pay their way by using these facilities. But even discounting the airlines entirely, the Federal government would have to undertake a sizable airport program. Well-run airports make a profit. And the records are clear that airlines are the minority users of all but a very few large terminal airports in the U. S.—and at these terminals the airlines pay heavy use fees. No one has yet come up with a formula as to how airlines could build their own airports. But airports are good, sound, useful civic ventures made possible with Federal help.

2. The amounts of mail pay going to the feeder airlines are not "fantastic," even though they have been fairly high in the early stages of feeder airline development. But most feeders have made steady progress toward reducing the amount of "need" mail pay. And in any event the situation is no different from railroads operating in sparsely-settled parts of the country, or from rural free delivery.

3. As for the airline contribution to Korea, up to the Chinese invasion which opened an entirely new kind of war, let Reader Eno ponder the following statement made in a cable to AMERICAN AVIATION by General Douglas MacArthur in connection with the airline presidents' dinner being sponsored by this publication Dec. 14 in Washington: "Without your (the airlines) cooperative effort history might well have recorded a different chapter of our campaign in South Korea."

4. Reader Eno is suffering under the same common misapprehension of others who think that the airlines represent all of U. S. aviation. If there were not a single airline operating today, the Federal government would still be maintaining and developing an ever-expanded airways system for all other types of flying. Or perhaps it would be under military jurisdiction, which would cost even more than it does under CAA. As for the airlines paying for these facilities, they do, in many ways. They pay for them in a Federal gas tax, a big sum each year, and in income taxes. This year American Airlines, for example, will pay in income taxes considerably more than the mail pay it will receive. If a use charge were actually assessed on the airlines—a very difficult thing to do fairly—such use tax would merely cut down the amount of federal taxes paid and would result only in a bookkeeping gain minus the cost of assessing and collecting such a use tax.

5. As for the last sentence in Reader Eno's letter, all we can say is that many Congressional committees in the past have been used as propaganda vehicles for the railroads. In this instance no such charge is made because Congressional committees, by and large, have been increasingly understanding to civil aviation problems and how they tie in to defense requirements.)

BOOKS

PLANNING AND DESIGN OF AIRPORTS, by Robert Horonjeff and John Hugh Jones, (University of California Syllabus No. 316). 63 pp., 33 illustrations. Available from Associated Students' Store, University of California, Berkley 4, Calif. $1.50.

This manual explains the principles pertaining to planning and design of airports, as well as related problems and standards of design. There are chapters on site selection, design standards, airport layout, pavement designed, airfield drainage and airport marking and lighting.

OBITUARY

John Douglas MacGregor

John Douglas MacGregor, 74, former vice president and general manager of Pan American-Grace Airways, died of a heart ailment at his home at Santa Monica, Calif., where he has resided since his retirement in 1940.

Tony Orta

Tony Orta, 62, a former director and general manager of SABENA Belgian Air Lines, died in Brussels on November 27. A flyer since 1911, he pioneered commercial air service in the Belgian Congo and established the first SABENA intercontinental route in 1935, linking Europe with the Congo and South Africa. He was named director of the airline in 1942 and became general manager in 1945. In recent months he had curtailed his activities with the company to those of an advisor and consultant.

Sir Gurunath V. Bewoor

Sir Gurunath V. Bewoor, K.C.I.E., managing director of Air-India, died suddenly of a heart attack in Bombay. He was in the U. S. last month attending the IATA meeting in San Francisco and visiting in Washington.

IN FLIGHT

A PAGE FOR ALL PILOTS

Keeney's Quick Commuting

Jim Keeney, who flies out of Los Angeles for United Air Lines, lives in Santa Barbara 93 miles away. but gets to work in 23 minutes. His Beechcraft Bonanza is equipped with constant-speed propeller and $4,000 worth of instruments, including automatic direction finder, omni receiver, ILS, high-frequency radio and Lear L-2 automatic pilot. Keeney almost never has to resort to his automobile because instrumentation in his Beech enables him to fly the same minimums that apply to the airline. The Lear auto pilot enables him to relax in ease and comfort and arrive at UAL's dispatch office ready for work less fatigued than most pilots who live in town but have to buck Los Angeles' particular brand of nerve-shattering automobile traffic.

Alternate operations do, of course, disturb the Keeney system slightly. It is a simple matter to fly to Lockheed Air Terminal instead of Los Angeles on receipt of word from dispatch, but it seldom happens that both ends of a trip involve an alternate field so Keeney does have to suffer an automobile trip across town to get to his plane after the return flight.

CAA Seaplane Booklet

Seaplane pilots who want to set up their own docks or who are prone to wander to lakes remote from civilization will find CAA's latest publication, "Seaplane Facilities," useful. The booklet gives the important considerations in developing a seaplane base, such as site selection, currents and water-level variations, and master plans and building areas. It is illustrated and has charts and tabulations to help in planning facilities. Price 25c. Address Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Handy Flight Log

Cross-country pilots should pin a blue ribbon on Standard Oil of California for their courtesy gift of a pocket-size, celluloid "flight log" which is being distributed free through their dealers. The size of an elongated post card, it has spaces for all the information a pilot uses on a long flight and the markings can be erased or washed off for the next leg of the trip.

Called the Standard Flight Guide, it's complete and compact. One side tells you—in case you forget or are too occupied with rough air, etc., to look through manuals—the VHF frequencies for range, towers and emergencies; distances at altitudes that VHF can carry; airway altitudes; the complete radiotelegraph code, and traffic control light signals. One edge is marked off for mileage on world air charts and the other is marked for sectional charts to cover 50 miles. This is handy. Most private pilots don't get off course any farther than that.

But the front of the card is the gold mine. There are spaces to fill in the plane number, pilot's name, address, departure point, destination, estimated time en route and fuel. A flight log has spaces for check points, compass headings, time, and range and tower frequencies and there are winds aloft velocity and direction spaces by altitudes up to 10,000 ft. A graphic explanation of weather sequence and symbols completes the picture. All we can say is that this guide occupies the space nearest and dearest to our hearts previously occupied by Tucson Municipal Airport's key-ring cowl fastener.

B.J.W.

SEVEN of the nine Mid-Continent Airlines pilots drafted into passenger sales work (see text). They are shown here being briefed by Howard E. Davidson, district manager-traffic and sales (second from left) and W. H. Glenn, assistant general sales manager (second from right). Pilots, left to right, are: M. E. Stehr, J. H. Hutton, W. D. Nickell, B. D. Carrico, J. L. Mumaw, R. A. Kammeyer and J. M. O'Connor. Pilots J. C. Knox and M. A. Draut were not available for this photo.

Sales Department Pilots

When Mid-Continent Airlines found it necessary to take nine first officers off flight duty temporarily, it came up with an interesting solution. Instead of a furlough, the nine pilots were assigned to the sales staff. A program was worked out for the pilots, in full uniform and with portfolios of information regarding the MCA operation, to call on passenger prospects. The pilots make effective salesmen, limit their approach to matters concerning MCA's operating record, safety and related information. After the 30-day winter campaign is completed the crews will return to flight duty on newly arranged schedules.

Pilot Use of CAA Services Jumps

A 224% increase in radiotelephone contacts between pilots in flight and CAA aircraft communicators took place in the first eight months of 1950 over the comparable period in 1949. In 1949 more than 4,000,000 calls were made during this period. Also up were preflight pilot briefings by communicators which went from 690,590 in 1949's first eight months to 1,225,253 in 1950.

Figures are not yet available on the emergencies in flight during this period but CAA feels this should be down considerably below last year. The reason: sharp increase in pre-flight briefing will be reflected in fewer in-flight emergencies. In 1949 these emergencies had dropped to 571 from a high of 4,400 the previous year when briefings were much less frequent.

Airman ID Cards

Sometime in January, pilots will be able to obtain from CAA field offices a form on which to apply for an airman identification card. The procedure is voluntary, but applying now will protect pilots against temporary grounding if the world situation worsens and the cards are made mandatory.

To obtain a card, fill out one copy of the application form, sign a non-subversive statement, and accompany it with documentary proof of identification, citizenship, place and date of birth plus two small photographs. A fingerprint will be placed on the application and on the card.

ANOTHER GREAT AIRLINE JOINS THE DC-6 FAMILY!

Purchase by Pan American of a fleet of DC-6Bs again focuses world attention on this advanced Douglas air transport with its heritage of more than 13 billion passenger miles of dependable service. This brings the number of major airlines in the illustrious DC-6 family to nineteen.

Longer, heavier, more powerful than the standard DC-6, the DC-6B was selected by Pan American because engineering and operations studies convinced them it was the finest in its class for their international requirements.

High performance with low operating costs, superior take-off and cruise performance with four Pratt & Whitney R2800-CB 17 engines, and pressurization for flight up to 25,000 feet are features of this new transport.

Cabins feature a private stateroom forward of the wing. Quick conversions can be made to a 44-passenger sleeperette, 58-passenger standard, or 84-passenger high density model.

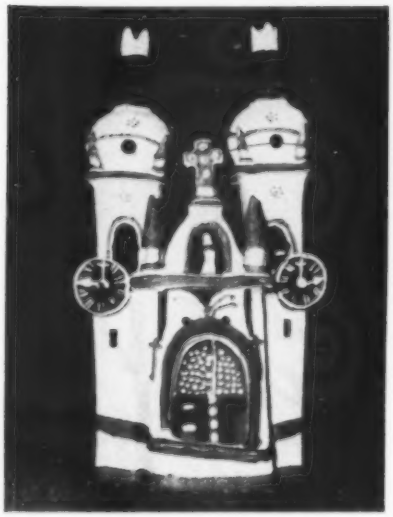
DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA

DEPEND ON DOUGLAS

30TH ANNIVERSARY YEAR

Greater Love Hath— Last May my wife and I dined at the home of **C. J.** and **Louise Tippett** in Lima, Peru. Tip is ICAO's representative in South America and knows the continent well. In his travels he's collected a lot of things and while looking over his curios and works of art my eyes landed on a model of a church.

It was about two feet high, made of baked clay, had big clocks on the two towers, had some figures in the entrance-way, and was rather gaudily painted. It was unlike anything I'd ever seen. But everything on this



church model was a little bit out of proportion—it was like a caricature. It had graceful lines—yet it made you chuckle to look at it.

Tip told us that he had found this odd clay model in a town by the name of Ayacucho, 12,000-feet altitude in the Andes about 300 miles north of Lima. He said they were common in the area around the town but rarely seen in Lima or elsewhere because, first, the natives didn't take to the idea of selling them to strangers, and second, they were likely to be broken by the two-day truck trip down to Lima.

My wife and I waxed ecstatically about the model and told Tip that if he ever ran across another one, we'd sure like to have it. In a few days we were on our way to Buenos Aires, Rio and London, and forgot all about the cute little church made by the Indians of Peru.

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It Arrives. A few weeks ago I answered the telephone in Washington and Tip was on the other end. He had something for me, he said. At first I thought it might be a penguin or a toucan bird or a baby tiger, because Tip collects and raises all sorts of things, but he reassured me that the gift wasn't alive, but was a cathedral.

Sure enough, Tip and Louise had flown to an airfield 9,000 feet high near Ayacucho (in a C-47, no less), purchased this clay church, spent hours packing it carefully, and Tip brought it to the U. S. with him via Panagra to Miami, National to New York, Trans-Canada to Montreal, and back to New York and on to Washington. How he ever got it to me without breaking more than the very top of one tower and one other protruding piece (both glued back on now), I'll never know.

But I am the proud possessor of a caricature of a church, probably one of only two in the U. S. (a doctor friend of Tip's has one in Little Rock, Ark.), from the high Andes. Tip is still trying to find out more about the origin of this church-model building which is centered in just this one town. Every model has two big clocks, yet no church in Peru is equipped with a clock. The natives of Ayacucho are very religious and these models play a big part in the frequent religious festivals, but why they paint clocks on the towers, and why they make these models like they do, is yet to be discovered.

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Iguassu Again. Remember the two-page report on my trip to Iguassu Falls in Brazil in the September 18 issue? Well, things have been happening down there. First of all, Panair do Brasil added a second round trip between Rio de Janeiro and Asuncion, Paraguay, in August, thus making it far easier to get in and out of Iguassu since all Rio-Asuncion flights stop there.

Then I had a letter from **Eduardo M. Alvarenga**, director of maintenance for the Brazilian airline REAL, Sao Paulo, who read my article, telling me that REAL has initiated week-end flights for tourists from Sao Paulo to Iguassu with connections to and from Rio. You can leave Rio or Sao Paulo on Saturday mornings, and depart from Iguassu early Monday mornings, having had ample time to see Iguassu Falls from both the Brazilian and Argentine sides. Not only that, but REAL stops at Guaira on the westbound trip to give passengers a chance to see the Sete Quedas (Seven Falls) some distance north of Iguassu, and I'm told these are a spectacular sight almost as interesting as the Iguassu Falls themselves. REAL is now operating 5,500 route miles with 24 DC-3's and 2 C-46's and has its main base in Brazil's booming Sao Paulo.

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Climb to Bed. **Roy Pearl,** AMERICAN AVIATION's London correspondent, recently flew to Kenya Colony in Africa in the new British Hermes transport. He spent a night in a treetop—the Treetops Hotel at Nyeri, Kenya Colony. Needed altitude, he said. I've never

been to Nyeri and have never seen a treetop hotel, but I pass on this information to my readers in the interest of science and the comforts of life in the big game country of Africa.

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More on Subways. I've found a fan who has me beat all hollow on subways. He's been on every subway system in the world except Madrid and he expects to make that one soon. He rode on the Moscow subway in 1936 and that's one I'll probably never get to ride on. He is **Philip L. Chai,** manager of the Chinese department of Pan American Airways in San Francisco who, like me, enjoys traveling underground as well as overhead.

Chai tells me there is a subway in Osaka, Japan, although small. I had missed it in my list on this page. I gather that he thinks Buenos Aires has the best-maintained and most attractive underground system in the world, considers the Paris Metro to be "fair," the Tokyo system to be crowded at all times, and the London Underground to be quite good. I hope he gets to Madrid so he can boast of a 100% performance record.

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Crust on the Loaf. You've all heard of the **famous Sugar Loaf** in the harbor of Rio de Janeiro even if you haven't seen it. Know what's happened? Some big shot newspaper publisher and radio station owner managed to get permission to build a four-story building and a television antenna on top of El Sucre. This publisher, by name of Chateaubriand, has nicely botched up one of the most famous landmarks of the world.

Advanced aerodynamic design is what you expect when a top team of designers like those of the Fairchild Guided Missiles Division build a missile. But that is only part of the problem in missile manufacture.

A guided missile is packed from nose to tail with complex electronic guidance circuits that must control its flight accurately—even during the shock of launching and the high G loads of tight turns. The *avionic brain* must not "black out" even under loads well beyond those a human pilot can withstand.

In Fairchild's missiles, not only the airframe but the complete missile, including the *avionic brains* —that are squeezed into the cramped quarters of the missile's body—are Fairchild designed and Fairchild manufactured.

To prove the ruggedness and reliability each missile is subjected to G loads never before asked of electronic equipment, while test apparatus shows how the "bird" stays locked on the target. Flight tests confirm this amazing accuracy and ruggedness.

Here is another example of Fairchild research and development, at work for the Armed Services.

Far ahead in the field, Fairchild Guided Missiles are an example of the achievement possible when top-flight aerodynamicists and ingenious electronic engineers tackle closely interrelated problems as a single, united team.

ENGINE AND AIRPLANE CORPORATION

FAIRCHILD *Guided Missiles Division*

FARMINGDALE, N. Y.

Other Divisions: Fairchild-NEPA Division, Oak Ridge, Tenn. • **Fairchild Aircraft Division,** Hagerstown, Md.
Fairchild Engine Division, Al-Fin Division and **Stratos Corporation,** Farmingdale, N. Y.

(*Continued from opposite page* 3)

3,800-hp for take-off against 3,500-hp in the B-36D. Detailed performance specifications were not released.

Monorail System: A new monorail delivery system for supply paradrop which can handle almost a ton a second has been developed by Air Materiel Command in conjunction with Ryan Industries, Detroit. System was designed primarily for Fairchild Packet.

MILITARY

Greenville Bids: Successful bidder for civil contract operation of air forces newly-opened basic flight school at Greenville AFB, Miss., will be announced about Jan. 10. About 60 bids were submitted by flight school operators.

Contract Preference: Air Force, Army and Navy procurement officers have been urged by the Munitions Board to give preference whenever possible in the award of negotiated defense contracts of $100,000 or more, to companies which have participated in voluntary allocation production. The program was established over two years ago to prepare industry for rapid conversion to military production in event of emergency. Now the Munitions Board seeks to award these manufacturers defense contracts whenever it is possible to do so.

Appointments Confirmed: Senate Armed Services Committee has confirmed appointment of **John D. Small** as Munitions Board chairman, and **Mrs. Anna M. Rosenberg** as Assistant Secretary of Defense.

AF Contracts: The Air Force has awarded the following negotiated contracts in excess of $100,000: Lear Inc., Grand Rapids, Mich., $280,738, actuator assemblies and screw jacks; Bendix Products Division, South Bend, Ind., $265,625, wheel and brake assemblies; Revere Corp. of America, Wallingford, Conn., $192,800, fuel flow transmitters; Goodyear Tire & Rubber Co., Akron, $367,220, airplane casings and tubes; General Textile Mills, Inc., New York, $312,600, helmets; United States Rubber Co., Detroit, $220,332, airplane casings and tubes; Harris-Seybold Co., Cleveland, $602,539, printing presses; Lockheed Aircraft Corp., Burbank, Calif., $123,542, aircraft spare parts; Jack & Heintz Precision Industries Inc., Cleveland, $240,000, generators.

CONGRESS

Profits Tax Protest: Provisions of the excess profits tax bill passed by the House on Dec. 5 will be protested before the Senate Finance Committee by airlines and aircraft manufacturers. They contend that the 1946-49 base period years were not normal profit years for the industries and that imposition of the tax would virtually amount to confiscation and might drive some companies out of business.

Separation Bill: House proponents and opponents of the pending Heselton bill providing for separation of domestic air mail pay and subsidy were surprised Dec. 6 by a telegram from Sen. **Edwin C. Johnson** (D. Colo.) that he would do "his utmost" to get the bill through the Senate during this session of Congress. Opponents of the bill said the telegram sounded "silly and unreasonable" in view of the fact that the Senate Interstate and Foreign Commerce Committee, of which Johnson is chairman, is now engaged in a $145,000 study of the separation problem, with a report due about Mar. 1. The Heselton bill requires separation by CAB by July 1.

AIRLINES

Record Earnings: The 16 domestic trunk airlines will report in 1950 their highest dollar earnings in history—about $45,000,000 against $24,600,000 in 1949, according to aviation securities committee of Investment Bankers Association. Passenger-miles will be at least 15% above 1949, committee said.

Rate Case Criticized: **L. Welch Pogue,** Western Air Lines' director and Washington attorney, said he was "shocked" over CAB's order holding that WAL had been overpaid $671,474 for carriage of mail. Referring particularly to the majority's finding that WAL's profit from sale of Denver-Los Angeles route to United Air Lines should be used to reduce its mail pay need, Pogue said: "No carrier could henceforth be expected to want to sell a route or a segment of a route to another carrier, no matter how desirable the sale might be, when he realizes that any profit he may realize will be taken away from him in a mail rate order." WAL will ask reconsideration of the case.

Tigers Convert C-46's: The Flying Tiger Line is converting 18 Curtiss C-46's recently purchased from the Air Force for civil use at a cost of over $250,000. Planes are being ferried from Pyote, Tex., where they were stored, to Burbank, Calif. When in service, the planes will bring the Tiger fleet to 44, including 29 C-46's, one C-47, and 14 C-54's.

People: **Kenneth A. Lawder,** who joined Pan American-Grace Airways last July, has been elected vice president and comptroller . . .

CIVIL AERONAUTICS BOARD

Applications

• **Slick Airways** wants temporary all-cargo certificate made permanent or changed to authorize service beyond present Aug. 12, 1954 expiration date. Expansion plans, carrier told CAB, are hampered by "early termination date."

• **Braniff Airways** applied for amendment of its international certificates to authorize service to Santa Cruz, Bolivia, as an intermediate point between La Paz, Boliva, and Asuncion, Paraguay. Also, while CAB is processing the application, Braniff asked for an interim exemption to serve the new point.

• **Riddle Aviation Company,** non-certificated cargo carrier, applied for an exemption to serve West Palm Beach, Florida. Board presently restricts Riddle's service to New York, Miami, and Puerto Rico.

Actions

• **Pioneer Air Lines and Price Campbell** joint application for approval of interlocking relationships turned down by CAB. Campbell is a director of Pioneer and of the Wichita Valley Railway Company. But latter company's affiliation with other subsidiaries of the Burlington System, some of which compete with Pioneer, led to disapproval of Campbell's joint holdings.

• **Central Airlines and Mid-West Airlines** ordered to show cause why past-period mail pay should not be increased. For Central, CAB proposed extra $23,000 for period Sept. 15, 1949 through Sept. 30, 1950. For Mid-West, $7,000 additional was proposed for period Oct. 21, 1949 through Aug. 31, 1950.

• **Hawaiian Airlines** granted exemption to carry persons, property, and mail for one year between Puunene and Hana Airports on the Island of Maui. Carrier had been using both airports to serve Maui but was unable to carry local traffic between them. Also, in view of proposed transfer of HAL's operations from Puunene to Kahului Airport, CAB provided that the exemption would apply to service between Kahului and Hana fields when the transfer is made.

• **Kesterson, Inc.** turned down by CAB on application for an individual exemption to operate as a large irregular air carrier.

Examiners' Reports

• Adoption of regulations by CAB to authorize international airlines to provide free or reduced-rate travel to all persons extended such privileges under approved IATA resolutions was recommended by Examiner Barron Fredricks. Most international lines today offer such discounts but appropriate tariffs have been under CAB investigation since February, 1946.

CIVIL AVIATION

Unicomm Approved: Use of a "Unicomm" VHF frequency of 122.8 mc. at airports where no traffic control station is located has been approved by Federal Communications Commission. The two-way radio stations are to be used only as "advisory" stations to give aircraft information on runway conditions, fuel availability, etc., and are not to be used for traffic control. Frequency may be used in air-to-ground, ground-to-air, or air-to-air communication. Applications to establish stations may be obtained from FCC field representatives and should be directed to Secretary, FCC, Washington, D. C.

Low-Power Omnirange: CAA is considering a program for low-power omnirange stations at airports served by local service lines or with sufficient traffic to warrant low-cost navigation and landing aid equipment. Such stations would have an estimated 30-mile range and in effect would fill in the blank spaces of the communications maps to enable local service and charter flight operations in marginal weather, as well as provide a network of private flying aids on a static-free frequency.

Deficient Runways: There are probably an adequate number of airports in the U. S. for both civil and military needs in an emergency, but 75% of fields in the mobilization plan are deficient in runway lengths for military use, and others are inadequate in strength or other respects, CAA Administrator **Donald W. Nyrop** told the Aviation Distributors and Manufacturers Association. Two questions to which the National Security Resources Board airport task group now touring key civil airports is seeking answers are (1) who is to pay for and maintain the additional runways and other facilities needed to bring existing airports up to military requirements, and (2) what is the best arrangement for joint civil-military use of a civil airport into which the military moves, Nyrop said.

Lightplane Shipments: Nine manufacturers reporting to Aircraft Industries Association state that October shipments of one to 10-place personal aircraft totaled 213 valued at $1,276,000, compared with 208 planes valued at $948,000 in the same 1949 month.

Airport Bonds Sold: Port of New York Authority has sold $13,000,000 worth of air terminal bonds to Harriman, Ripley & Co., and associates. Proceeds will be used for further development work at Newark, Teterboro, LaGuardia and New York International airports.

FINANCIAL

Airline

Capital Airlines reported $338,811 operating profit and $175,084 net profit for October, against $128,851 and $111,622, respectively, in same month last year. October passenger revenue was $2,205,130 against $1,737,013 last year.

Colonial Airlines' net profit for third quarter of 1950 was $103,306 against $103,148 last year. Revenue plane miles were down 12.4% due to replacement of DC-3's with DC-4's on New York-Montreal earlier this year.

Dividends

Air Associates Inc. has declared a 10c dividend per common share, first since March, 1947.

Grumman Aircraft Engineering Corp. voted a 50c dividend on common stock, payable Dec. 21.

LABOR

Lockheed Raise: About 1,400 Lockheed Aircraft Corp. engineering employes represented by Engineers and Architects Association have ratified agreement calling for 6% blanket pay raise retroactive to Oct. 16, together with corresponding increases in wage and salary rate ranges. No other provisions in existing contract, which runs until September, 1951, are changed.

Separate Seniority Lists: Pan American World Airways has asked CAB to allow it to set up separate seniority lists for PAA and for former American Overseas Airlines and American Airlines pilots, flight engineers, flight service personnel and mechanics. Employes in these groups have reached no agreement on integration of seniority lists and in some cases have refused arbitration, PAA said.

ALDA to Move: Air Line Dispatchers Association will move its headquarters this month from Denver, Colo., to 105 S. Washington St., Alexandria, Va.

IN GENERAL

Richardson Heads IAS: Adm. **L. B. Richardson,** USN (Ret.), director of research for Fairchild Engine & Airplane Corp., has been elected 1951 president of Institute of the Aeronautical Sciences. New vice presidents are **R. D. Kelly,** United Air Lines; **W. C. Rockefeller,** Consolidated Vultee Aircraft Corp.; **W. T. Schwendler,** Grumman Aircraft Engineering Corp.; **E. C. Wells,** Boeing Airplane Co. **E. E. Aldrin,** Atlas Supply Co., will be 1951 treasurer.

AROUND THE WORLD

Improved Comet: DeHavilland Aircraft Co. Ltd., England, is reported to be planning an improved version of the jet-powered Comet transport, using either four Rolls-Royce Avon or Armstrong Siddeley Sapphire engines each rated about 2,000 pounds thrust more than the Ghost jets (5,000 pounds) in initial production program. British Overseas Airways Corporation is said to be interested in the improved model. Maximum weight of the transport would be raised from present 105,000 lbs. to about 120,000 lbs. Increased power would indicate maximum cruising speed of about 550 mph. Lower specific fuel consumption of axial flow jets would go far towards offsetting increased fuel flow for the bigger engines.

Marc Protay Dies: **Marc Protay,** administrative manager of Air France's North American and Caribbean division since its organization in February, 1946, died in New York on Dec. 4.

OFF THE PRESS

• **Shawcross and Beaumont on Air Law,** second edition, 1950. by Christopher Shawcross and K. M. Beaumont. Published in England, this book "aims to explain comprehensively and completely not only the law affecting British aviation but also the international law in all its aspects." $26.50 per copy. Carswell Co. Ltd., 145-149 Adelaide St. W., Toronto, Canada.

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AVIATION PRODUCTS

American Aviation

THE INDUSTRY'S FIRST NEWS MAGAZINE

NEWS ISSUE

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RECEIVED 18 DEC 1950 ARMY LIBRARY SERIAL RECORD

a LOOK at the WEEK

Kaiser-Frazer's Willow Run plant is expected to go back into airframe manufacturing before long. There's nothing definite yet, but Kaiser is dickering with Air Force for license to produce one or more planes. Possibilities: Boeing B-47, Fairchild C-119. Kaiser may also build Lockheed jet components at another plant.

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The accent will be on development of existing aircraft rather than long-range research in Defense Department's research and development program under the pending supplemental defense appropriation. A large portion of the additional $437 million Defense is requesting will also go toward expediting flight dates of experimental prototypes now in production.

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Although the pending supplemental appropriation provides over $2 billion for additional Air Force plane procurement, it does not call for any extra Navy planes. An item of $156 million listed in the bill as Navy "aircraft procurement" is actually for tooling and new production facilities.

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Indications are that Defense Dept. is getting ready to implement some industrial mobilization contracts for airframe production.

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It's expected that all airline and non-sked planes recalled to Pacific airlift will be back in service by year-end, bringing total to 66. Incidentally, some officials believe military will need more civil transports in Pacific before long.

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There's considerable difference of opinion in government over who should handle job of setting civil aviation's requirements for planes and parts, to be scheduled in with military production, once a long-range program is established. Munitions Board would like the job; civil agencies object because this would mean complete military control. Other possibilities are NPA and Air Coordinating Committee. Matter isn't settled yet.

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Aviation gasoline supply is now reported adequate, unless there's an all-out war.

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Although separation of airline mail pay and subsidy is dead issue in lame duck Congress, action can be expected at new session next year. House may delay vote until Senate Interstate and Foreign Commerce Committee knows results of its pending study on the subject.

Ample Space for Volume Production

The airframe manufacturing industry could produce more than 20 times its current rate of airframe poundage by utilizing all existing floor space (including reserve plants) under mobilization conditions, an AMERICAN AVIATION survey discloses. This assumes the ability of the industry to hire more than five times as many employes as it now has.

Similarly, under concentrated production conditions, the airframe industry could turn out about 11 times as much airframe poundage as it is currently producing by utilizing only the space in plants now operating.

Would Need 1,000,000 Employes

Including both active and reserve plants, there are available about 110,000,000 sq. ft. of floor space for airframe production. The industry could produce 110,000,000 airframe pounds a month, compared with the current rate of slightly over 5,000,000. To accomplish this, it would need over 1,000,000 employes, compared with the present 200,000. The 110,000,000-lb. figure would not be reached for some time, until existing floor space reached saturation capacity.

About 54,000,000 airframe pounds a month could be turned out in plants now in active operation after reaching maximum capacity and after hiring another 340,000 employes. There are about 50 active airframe plants of varying sizes with about 54,000,000 sq. ft. of floor space. About 46,000,000 sq. ft. are actually being used for production, but the space is loosely utilized. In addition to airframe facilities, there are now active about 15 engine and propeller plants with total available floor space of 16,000,000 sq. ft., of which 14,000,000 is in active use.

There are 75 airframe, engine and propeller plants in reserve: 36 owned and controlled by the Defense Dept. and another 39 in the industrial reserve.

Long-Range Plan on Planes, Parts

A long-range program to insure an adequate supply of airplanes and spare parts for airlines and other civil users is in the making, with conferences underway between the various government agencies concerned.

This plan, when completed, will supersede the stop-gap interim program now in effect which includes the use of National Production Authority directives. The present program is admittedly of an emergency nature.

Until this long-range plan is announced, it is improbable that the Air Coordinating Committee will make public any statement regarding its attitude toward the non-transport civil aircraft manufacturing industry. The lightplane makers, represented by Aircraft Industries Association, appeared before ACC last week, seeking recognition of their essential connection with national defense.

Scheduled With Military Production

Although it is not yet possible to determine exactly what the long-range plan will be, it will probably include a procedure under which a civil agency will have the responsibility for determining civil needs for planes and parts. These needs will then be scheduled in with military production, specifically earmarked for civil use.

Although present NPA directives take priority over Defense Order Ratings, they cannot be extended, i.e., when a manufacturer receives a directive to furnish a part, and does not have the part in stock, he cannot pass the directive along to a supplier to get materials.

DESK COPY 3

The contemplated program would have the advantage of earmarking the planes, parts and materials from the start of production. As one official put it, "We will know what the item is, who is to get it, and when he is to receive it."

The lightplane makers told ACC that their needs are very small, compared with total national production. In 1949, they said, six plane and three engine manufacturers (who accounted for over 95% of plane and engine production) used the following:

	National Production (Tons)	Used By Lightplane Industry	% of National Production
Steel	77,978,176	1,349	0.00172
Aluminum ..	603,462	1,666	0.275
Copper	1,072,000	137	0.0128
Rubber	1,211,582	91	0.0075

"It is illogical," the AIA statement to ACC said, "to halt *any* kind of civil aircraft production when the same facilities and the same management, engineering and productive skills which produce such aircraft form an invaluable reserve against possible M-Day needs."

MANUFACTURERS

Patent Infringement: Patent infringement suit of **Maurice A. Garbell** and Garbell Research Foundation against Consolidated Vultee Aircraft Corp. and American Airlines has been upheld by U. S. District Court at Los Angeles. The suit charged that Convair and American had infringed Garbell's patent by using the wing design on the Convair-Liner transport. Garbell claimed that he applied for a patent in 1946 on the Convair wing design, received one in 1948, and that shortly before the design was patented it was incorporated in the Convair-Liner. The court upheld the validity of Garbell's patent and ruled that it had been infringed by Convair and American. Convair will appeal the decision.

$20 Million Order: A $20,000,000 order has been received by Westinghouse Electric Corp. from Air Force for electrical equipment to be used in a new jet engine test wind tunnel to be built at Arnold Engineering Development Center, Tullahoma, Tenn.

AiResearch Plant: A new division of The Garrett Corp., called AiResearch Manufacturing Co. of Arizona, has been formed to operate the new AiResearch plant at Phoenix, Ariz., airport, for which ground will be broken within 60 days. The 60,000 sq. ft. plant will be windowless and air-conditioned and may later be expanded to 250,000 sq. ft. The Garrett Corp. has appropriated an additional $500,000 for machinery to add to the $1,000,000 initially set aside for construction of the new facility.

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WAYNE W. PARRISH, Editor and Publisher
ERIC BRAMLEY, Executive Editor

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AIA Elects: **E. B. Newill,** general manager of Allison Division of General Motors Corp., has been elected chairman of Aircraft Industries Association's board of governors for the period Jan. 1-June 30, 1951. He will also serve as chairman of the eastern region of the aircraft manufacturers' council, with **Lawrence D. Bell,** president of Bell Aircraft Corp., as vice chairman. Chairman of the western region is **Donald Douglas,** president of Douglas Aircraft Co., with **Robert E. Gross,** board chairman and president of Lockheed Aircraft Corp. as vice chairman. All four of the latter offices are for calendar year 1951.

PLANES & EQUIPMENT

Military 404: Military version of the Martin 404, known as the Airlift 404, is being offered to Air Force and Navy by The Glenn L. Martin Co. Plane is offered with alternate powerplants, the Pratt & Whitney R-2800 CB-14, rated at 2,500-hp each or Allison T-38 turboprop rated at 2,750-hp. Features include use of wing-tip fuel tanks, additional two feet five inches of fuselage length, for a total of 97 ft. 11 in. Piston-engine version would have maximum cargo capacity of 17,500 lbs., or could carry 14,000 lbs. for 1,150 miles combat radius. Cruising speed is about 270 mph. With Allisons, performance would be increased about 30%, Martin states.

New Plane Licensed: The Texas Bullet 205, made by Aircraft Manufacturing Co., Tyler, Tex., has received CAA type certification. The four-place plane was certificated in the normal category with 2,300 lbs. maximum weight, and a Continental 205-hp E-185-1 engine.

Jupiter Starts Tests: The Jupiter lightplane, under development at Jamieson Aircraft Co.'s DeLand, Fla., plant, has started CAA flight tests. It is reported that company will attempt to sell the plane to the Army for use as a controlled target aircraft. Jamieson, which had been closed, has started operating again on a limited basis.

C-102 Improved: The Avro C-102 Jetliner, made by A. V. Roe Canada Ltd., has been fitted with four additional fuel tanks increasing fuel capacity to about 4,400 gallons and range to 1,100 miles, plus a one and one-half hour reserve. In addition, the second airplane's gross weight will be increased from 65,000 to about 80,000 lbs.

Beech Prices: List price of the new Beechcraft Model 50 Twin-Bonanza will be $44,950 f.a.f. Wichita, Kansas, Beech Aircraft Corp. has announced. Price covers a version of the six-place twin-engined transport with constant speed propellers and complete equipment except radio installations. Beech also said that list price of the Model D18S twin-engined transport has been raised $5,500 because of increased costs of materials and labor. Price of the four-place Bonanza is still $12,990 f.a.f.

Aero Commander: Production lines for the Aero Commander, twin-engined executive plane, are nearing completion, and Aero Design and Engineering Corp., Oklahoma City, expects the plane to be in production before first of the year. Company states it has been assured of enough commercial orders to carry production for two years. Plane is also entered in current Air Force liaison competition.

50 Stratofreighters: The 50th C-97A Stratofreighter has just been completed at Boeing Airplane Co.'s Renton plant, and the line will shortly move over to C-97C's, which are similar except for minor structural alterations.

New Production Method: A new method of producing compressor blade masters for jet engines, which reduces cost of a single compressor blade master from over $4,000 to $100 and cuts time required to make one

from four-six months to three working days, has been developed by Pratt & Whitney Aircraft Division of United Aircraft Corp.

XF-92: The delta wing XF-92 of Consolidated Vultee Aircraft Corp. will return to Muroc shortly for more flight tests, this time with new Allison J-35 equipped with afterburner now being installed at San Diego. Plane will have top thrust of almost 8,000 pounds.

Modernized B-36: A modernized version of an early model B-36B, equipped with four jet and six piston engines, has been test flown at Consolidated Vultee's San Diego plant. Improvements make the modernized bomber equal in performance and equipment to the B-36D series in production at the Ft. Worth plant. An undisclosed number of the B-36B's are being improved.

Radar Company: Formation of Allison Radar Corp., 11 West 42nd St., New York, as a manufacturing organization as well as a sales outlet for Allison military and commercial radar products, has been announced. Company succeeds Allison Radar Sales Corp., which handled only sales and distribution of commercial radar. Miss **Aline Rhonie** is board chairman, president and treasurer. Quantity production of Allison Radar Models E, ES and ESB, extremely lightweight types, is planned.

MILITARY

$10.3 Billion for Planes: Fiscal 1951 military aircraft procurement money will total $10,337,242,000 when Congress approves the second supplemental appropriation request. Total will be as follows: Air Force, $6,603,440,000; Navy, $2,542,922,000; Army, $42,376,000; Mutual Defense Assistance Program, $1,148,504,000. It is estimated that slightly less than one-third of the $2.2 billion second supplemental will go to offset price increases since the original expansion programs were set up.

New Transport Policy: Defense Dept. has adopted new uniform traffic policies which appear for the first time to place commercial airlines on an equal footing with rails in negotiations for carriage of military business. New policies state that "in determining the mode of transportation to be utilized, the least costly means shall be selected, having in mind safety, expedition, equipment supply, procurement regulations, military necessity, and the national transportation policy." Airline officials have long claimed that, including all costs of a trip, they can furnish cheaper transport than the rails. Policies will probably mean change in present air, rail and bus agreements, under which the carriers transport official military business at a discount. These agreements are still preferential to rails.

Bids on Columbus: Bids are to be solicited by the Air Force for civilian operation of Columbus Air Force Base, Miss., second one to be reopened as a basic flight school.

AMC Contracts: Air Force's Air Materiel Command has awarded the following contracts in excess of $100,000: Aro Equipment Corp., Bryan, O., $138,020, pneumatic portable drills; Gould-National Batteries Inc., DePew, N. Y., $136,358, batteries; Electric Storage Battery Co., Cleveland, O., $228,856, aircraft batteries.

AIRLINES

PAA Paris Approval: After weeks of negotiation with the U. S., the French government on Dec. 12 issued the necessary permit for service by Pan American World Airways to Paris. PAA said it would start flying three round-trips weekly with Stratocruisers on Dec. 17. Word had not yet been received from the Italian government regarding PAA service to Rome. A French delegation is en route to the U. S. for consultations over the U. S.-French bilateral air transport agreement. It is believed that the French wish to discuss possible frequency and capacity restrictions.

New Hangars: Two new $350,000 hangars for occupancy by The Flying Tiger Line and Slick Airways are being built at Lockheed Air Terminal and are expected to be completed by Feb. 1. The hangars, being built by Lockheed Air Terminal, will provide each line with 40,000 additional sq. ft. of maintenance space, or about double present operations.

CPA Buys DC-4's: Two Douglas DC-4's have been purchased by Canadian Pacific Air Lines from an undisclosed U. S. source.

CONGRESS

Separation Killed: All chances of domestic airline mail pay-subsidy separation being passed at the lame duck session of Congress were killed Dec. 13 when the Senate Interstate and Foreign Commerce Committee voted not to consider the House-passed Heselton bill (H. R. 9184). Although Sen. **Edwin C. Johnson** (D., Colo.), committee chairman, had said he would "do his utmost" to get the Heselton bill through the Senate, he pointed out that controversial amendments had been proposed which would have required full committee hearings. Both Houses will consider separation at next session.

Labor Amendment Passed: S. 3295, amending the Railway Labor Act to permit closed shop agreements and check-off of union dues, has been passed by the Senate. A similar bill, H.R. 7789, has been approved by House Interstate and Foreign Commerce Committee, but there appears little chance of House passage during the remainder of the present session. Bill affects airlines and their employes.

CIVIL AERONAUTICS BOARD

Applications and Petitions

- **Ocean Air Tradeways,** a large irregular carrier, applied for an exemption to conduct unlimited military contract operations. At same time, company requested reissuance of its letter of registration in the name of United States Overseas Airlines, Inc.
- **Midway Airlines** applied for an exemption to operate passenger taxi service between airports in the Chicago area. Proposed service would be between (a) Midway Airport and Meigs Field; (b) Midway and Sky Harbor Airport; (c) Midway and O'Hare International Airport; and (d) O'Hare International and Meigs Field.
- **Capital Airlines** wants an emergency exemption to permit more flexible routing of its one remaining C-54 all-cargo ship. With two of original four C-54's committed to the renewed Pacific airlift, and with a third out of operation, Capital asked immediate authority to operate the remaining plane as follows: westbound, New York/Newark to Twin Cities via Detroit or Cleveland, Chicago, and Milwaukee eastbound, Twin Cities to New York via Milwaukee, Chicago, Detroit, and Baltimore.
- **Slick Airways** applied for exemption to transport personnel accompanying shipments of any U. S. government agency. CAB approved carriage by Slick of attendants accompanying military shipments last July, but carrier said lack of similar authority when dealing with other government agencies has often precluded carriage of available cargo.
- **Riddle Aviation Company,** non-certificated cargo carrier in New York-Miami-San Juan area, applied for an exemption to engage in military contract operations within the Western Hemisphere.
- **American Airlines** filed memorandum with CAB opposing priority handling of Delta-Northeast merger application and Delta's Columbia, S. C.-New York route application.

• **All American Airways** amended a pending route application to eliminate proposed segment between Hagerstown, Md. and Harrisburg, Pa., thus restricting application to service between Harrisburg and Scranton/Wilkes-Barre via Hazleton, Pa. Another application was amended by AAA to show the following proposed routes: (a) between co-terminals Huntington and Charleston, W. Va., and Washington via Parkersburg, Clarksburg, Morgantown, and Elkins; and (b) between Huntington-Charleston and Cumberland, Md. via Parkersburg, Clarksburg and Morgantown.

• **Air Line Pilots Association** urged CAB to extend Frontier Airlines' certificate for five years but went on record opposing CAB's proposal to suspend United Air Lines' service at Rock Springs and Cheyenne, Wyoming, in favor of Frontier.

Actions

• **Remmert-Werner, Inc.**, St. Louis-based non-sked, granted an individual exemption to operate for two years as a large irregular carrier. CAB said the line "has conducted only a very few flights in air transportation and there has been no pattern of regularity in its service between any pair of points."

• **Five large irregular carriers** face suspension of letters of registration on Dec. 19, 1950, unless overdue flight reports are submitted to CAB by that date together with a verified statement explaining failure to file on time. They are: Regina Cargo Airlines; Air Cargo Express; Economy Airways; Freight Air, Inc.; and Royal Air Service.

• **Northern Consolidated Airlines** granted exemption to engage in interstate air transportation of persons and property within the Territory of Alaska. Authorization applies when transportation is pursuant to (a) contracts with military, or (b) requests of military in connection with contracts between other persons and the military. Exemption is effective for six months.

CIVIL AVIATION

Traffic Control Plan: One of the most important documents ever prepared on air navigation and traffic control has been released by the Air Coordinating Committee's air traffic control and navigation panel. Entitled "Air Traffic Control and the National Security," it recommends: (1) establishment of radar as the primary traffic control facility in congested terminal areas with all other equipment used to supplement it, (2) use of radar-controlled approaches and departures 24 hrs. a day, regardless of weather, at airports in critical density areas.

FINANCIAL

Manufacturing

Cessna Aircraft Co. reported $227,052 net profit on sales of $7,158,499 for year ended Sept. 30, 1950. Sales were down from $12,738,433 for preceding year, due largely to drop in non-aviation sales to Quartermaster Corps. Aviation sales in 1950 were $5,507,815, down from $6,560,370 last year. Large blacklog of L-19 liaison planes is not reflected in the report. Cessna has arranged loan agreement with a group of banks for maximum line of credit of $4,000,000 over next two years, about half of which has already been borrowed.

Airlines

Mid-Continent Airlines' net after taxes for first 10 months of 1950 was $296,545 against $307,788 in same 1949 period. October net was $175,084 compared with $111,622 in same 1949 month.

Dividends

Mid-Continent Airlines declared 25c dividend payable Dec. 21 to stockholders of record Dec. 11. It is the second 1950 dividend.

Pioneer Air Lines voted 30c dividend on 90,000 shares of outstanding stock, payable Dec. 28 to stockholders of record Dec. 18. Company paid 25c dividends on Dec. 31, 1949, and June 30, 1950. Earnings for first 10 months of 1950 were $100,492.

LABOR

AA Contract: About 4,000 American Airlines' maintenance and stores employes represented by Transport Workers Union-CIO have signed three-year contract with the company. Contract involves a 4c wage increase retroactive to Dec. 2, with a similar raise each year, bringing total "improvement factor" in three years to 12c per hr. Under a cost-of-living escalator clause, employes will receive 2c raise Jan. 1 and additional 2c for each increase of 2.35 points in Consumers' Price Index. American plans to extend the wage benefits to an additional 3,500 employes not under union agreements.

P&W Settlement: Agreement reached by Pratt & Whitney Aircraft Division and International Association of Machinists averted a threatened strike. The three-year agreement, expiring Dec. 4, 1953, includes the 14c per hr. increase made effective Oct. 2 for all employes, and also provides annual improvement factor increases of 4c, effective September, 1951 and September, 1952. Cost-of-living changes will be made upward or downward each quarter in accordance with Bureau of Labor Statistics' Consumers' Price Index. First such increase will be 3c per hr. from Dec. 4.

Union Rejected: Engine overhaul division employes of Airwork Corp. at Millville, N. J., voted 88-23 to reject union representation by United Auto Workers-CIO.

McDonnell Raise: New contract signed by McDonnell Aircraft Corp. and International Association of Machinists provides 10c per hr. raise, cost-of-living wage adjustment, and "improvement factor" of successive annual increases of 4c each November. Contract, covering 4,300 employes, is retroactive to Nov. 6 and remains in effect until March, 1955. Increases will cost McDonnell $1,553,000 a year and bring payroll for current fiscal year to $25,468,000, up almost $4,000,000 from last year.

NAA Agreement: Hourly employes at North American Aviation's Columbus, O., plant have been covered by new contract signed with CIO-United Auto Workers. Current wage scale continues to Apr. 23, 1951, after which wage classifications and pay rates are same as NAA's California plants.

IN GENERAL

Lear Wins Collier Award: **William P. Lear,** chairman of Lear Inc., and research director for the company, has been awarded the Robert J. Collier Trophy for 1950 for development of the Lear F-5 automatic pilot and automatic approach control coupler system. The F-5 is a lightweight autopilot now in production for the Air Force for use in jet fighters.

AIL Sale Completed: Negotiations were being completed on Dec. 15 for sale of Airborne Instruments Laboratory by Aeronautical Radio, Inc. to a group consisting of (1) executives and employes of AIL, (2) Laurance S. Rockefeller and certain of his associates; (3) American Research and Development Corp. of Boston. Ownership will be divided equally among the three groups. Principal officers are unchanged: **Hector R. Skifter,** president; **D. M. Miller,** vice president; **Chester May,** secretary and treasurer.

COMING UP

Jan. 2-7—Miami Aviation Week, Miami, Fla.

Jan. 6-7—Annual Miami Air Show, Opa Locka Airport, Miami, Fla.

Jan. 8-10—8th annual Miami-Havana air cruise.

Jan. 8-12—Society of Automotive Engineers annual meeting and engineering display, Hotel Book-Cadillac, Detroit, Mich.